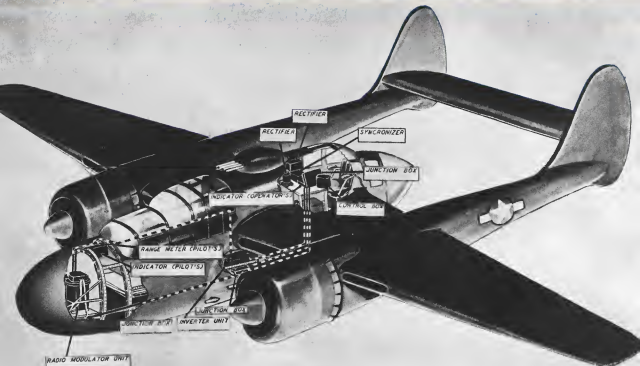


Aviation News

McGraw-Hill Publishing Company, Inc.

SEPT. 10, 1945



Radar Maze: End of wartime restrictions makes possible this release of a diagrammatic photo of part of the radar installations in a P-61 Black Widow. All this equipment serves only one purpose, aircraft interception. This is just one of the radar systems carried in the night fighters to enable them to fulfill missions in darkness and low visibility. Shown is the network which permits the operator to locate enemy aircraft and direct the pilot toward it.

Aircraft Component Scrapping Looms As Necessity

Shift in RFC policy seen as result of return of industry to civilian production; agency faces rapidly shrinking market.....Page 7

C-54E's Allocated As New Equipment Flow Begins

SPB announces 100 to 200 four-engine planes will reach carriers for commercial operation within ten weeks.....Page 41

Carriers Begin Readjustment To Non-Priority Travel

Belief that wartime control of service patterns may follow priority air travel out of existence on Oct. 15 also expressed.....Page 46

Small Airport Building Bans Expected To End in 60 Days

Two-month limit set for WPB restrictions on new construction; private flying will get secondary consideration until then.....Page 13

Freight Consolidation Plan Seen Boosting Air Cargo Use

New York organization, working with American Airlines on Model 39 experiment, finds load factor on mixed shipments high.....Page 44

See Prompt Approval For Single-Chief Surplus Agency

Present SPB head warns of disposal crisis within three months as no longer needed aircraft and other war stock reach "staggering amounts".....Page 9

Here's the HOW... and the WHY of TRIGGER-FINGER CONTROL

(Soon available on 10, 15 and 20-lb. Fire Extinguishers)



- 1.** Pull out non-jamming locking pin. Seating in two blind holes, it can't be turned... the ends cannot get bent over.



- 2.** Pick up easy-to-carry extinguisher. Balanced design and low center of gravity make carrying job simpler.



- 3.** Press the trigger. That's the simple, not-wild way to operate extinguisher — one finger does the trick.



- 4.** Get full flow at once. No halfway measures with this fast-acting valve... carbon dioxide goes right to work!



- 5.** Lock open—if desired. Just move trigger forward slightly to lock it in open position—no danger of fouling.



- 6.** Recharge without replacement parts. Merely connect carbon dioxide supply and fill extinguisher up.

Simple, safe and foolproof, this new trigger-control valve on 10, 15 and 20-lb. Kidde extinguishers speeds the attack on fires. A novice can operate it! Write for the full details today.

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Kidde

Washington Observer



CRYSTAL BALL—There are indications that there may be sharper reductions in aircraft production than appeared immediately after the surrender of the Japs. Balancing this, however, are equally strong indications that a temporary drop will be followed by a sizeable output of new models. In addition, President Truman has commented that it is vital to the welfare of our people that this nation maintain the development work and the nucleus of a producing aircraft industry capable of rapid expansion to keep the peace and meet any emergency. The armed forces are working on that basis.

TRANSFER COSTS—The War Production Board is understood to be taking the position that the transfer of war work from plants originally used for peacetime production to specialized war plants, would be to the contractor's advantage and therefore the government should not pay the costs of transfer. It is the feeling in WPB that no legal authority exists for the government to finance such transfers except in the interest of war production. The plan is, however, to make no formal announcement of definite policy at this time.

INDUSTRIAL MOBILIZATION—Important post-war assignment of planning for industrial mobilization in the event of a future emergency—which gives an indication of Washington thinking—has been assigned to the Army and Navy Mobilization Board. This means that the board will become one of the key agencies in the defense program to be adopted after the peacetime wartime armed organization is demobilized. The assignment is part of the reconversion program.

preparatory to the liquidation of wartime agencies and the shifting of their functions to regulate peacetime organizations.

SERVICES PROBLEM—Difficult problem facing the AAF and Naval Aviation production and procuring divisions, at the moment, is the matter of ordering spare parts for the thousands of aircraft still in service. Procurement of spare parts was long a troublesome problem until a formula was devised, based on widely varied combat service that worked to an extent in peacetime. The question now has arisen whether to continue spare production or resort to "consolidation." The answer will be of great importance to the aircraft industry.

WARTIME SECURITY—The services, in some instances, are finding that insistence on maintaining wartime security policies can be embarrassing to their own interests now that peace has come. For example, the Curtiss facility at St. Louis has completed its war assignment. The Navy wanted to move McDonnell Aircraft into the Curtiss plant which is excellently equipped. McDonnell is working on an important Navy contract scheduled to run for many months. Security prevented the Navy from explaining to St. Louis civic authorities what the Curtiss plant was wanted for or the importance of the McDonnell project. St. Louis officials wanted to use the Curtiss facilities as part of their municipal airport expansion program. Results was that the Navy decided that such interests would be served by releasing information in St. Louis about the jet fighter plane on which McDonnell is working.



New view of German jet-propelled fighter now under study by ATSC. (AVIATION NEWS, Aug. 27).

A New Corsair ...



...Joins the Fleet

The Navy has a powerful new aerial weapon — the F4U-4 Vought Corsair.

Even faster than the famous F4U-1, this deadly fighter-bomber is bringing new power to the Navy's carrier force.

CHANCE VUGHT AIRCRAFT

STRAITFORD, CONNECTICUT
ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

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McGraw-Hill Publishing Co., Inc.

Sept. 10, 1945

Aircraft Components Scrapping Believed Looming As Necessity

Shift in RFC policy seen as result of return of industry to civilian production; agency faces rapidly shrinking market for millions of dollars worth of surplus parts and materials.

By WILLIAM KROGER

The possibility that millions of dollars worth of surplus aircraft components will have to be scrapped as uneasable has been greatly increased by the rapidly of contract cancellations and the consequent return of the aircraft industry to civilian production.

Shortly before the end of the war, Reconstruction Finance Corp. officials held the opinion that the bulk of components and parts had to be disposed of before V-J Day. A few months later, it was stated, the market would shrink to about one percent of what it was at that time.

Vanishing Demand—Today, RFC is faced with the situation it feared, and the time remaining for most productive disposal is running short. Advice the industry gets production into high gear, the aviation market for surplus parts and components will be practically non-existent.

Meanwhile, RFC is handicapped, in effecting rapid disposal, by lack of precise knowledge of what must be disposed of, what quantities, where the material is located and its condition. Efforts to round out information have yielded poor results.

Indicative of the magnitude of the task is an estimate that there are approximately one million items totally unrelated to each other that fall within the classification of aircraft components and parts.

Outlets Gone—With the two greatest outlets for sale—aircraft war production, and non-aircraft war production—now eliminated, RFC officials are giving closer attention to recurring suggestions that much of the surplus components and parts be scrapped. Col. A. E. B. Peters, chief of the components disposal section has recommended that RFC and Surplus Property Board reverse the present policy and require complete justification when materials are not scrapped, but stored.

Authoritative feeling is that saving agencies should be directed to scrap certain quantities of identical items which cost \$100 or less. These, it is estimated, constitute about 60 percent of surplus

"Record" Speeds

For the record:

► A Boeing B-29 was flown from Honolulu to Washington, non-stop, in 37 hours and 31 minutes.

► A Douglas C-54 was flown from Tokyo to Washington in 31 hours and 15 minutes. The plane, piloted by Maj. G. E. Carr, flew the northern route, making two stops—Adak in the Aleutians and at Seattle.

The Superfortress was stripped of armor plating, special equipment, and converted to increase its speed, average being 285-mph. The flight was made at 34,000-ft. altitude. Pilot was Maj. Otto W. Buerling and airplane commander was Lieut. Col. Charles J. Miller.

components, but at the same time represent only about 30 percent of the dollar value.

If there is not some determination along that line, RFC has been warned, the disposal organization will be completely cluttered with paper work. Recommended is that saving agencies scrap such items without declaring them surplus, and that RFC likewise purge its records of them.

Flexible Rule—It is pointed out that in any event, all such items would not become surplus at once and consequently could not all be scrapped at once. Should a later use be found for components in



IMPROVED P-61 BRAKES:

The P-61C, improved model of the Black Widow, introduces "packet fence" brakes and "high-activity" propellers, which absorb the added thrust of the B-2400C engines.



RADAR EQUIPPED MARTIN MARINER

Headed in the "radar" atop this Navy craft, the radar antenna guides the plane toward its target or destination.

that category, the policy could be changed.

In disposing of commodities and parts that are saleable, normal channels of trade should be used, Col. Peterkin believes. RFC can't have sufficient experienced personnel, and cannot obtain it, to set up a merchandising organization capable of competing with established business firms.

To widen the existing base of utilizing normal channels of trade, RFC has frayed a fixed-price agreement for agents, which an agent can substitute for the company-fixed fee arrangement which has been used. The new contract allows the agent a 40 percent service fee for cover his shipping and other expenses.

CAA, CAB Future Pends In Congress

Two committees of Congress opened consideration of the President's request for sweeping powers to reorganize the executive branch of the government last week, but it is too early to tell what may be in store for the Civil Aeronautics Administration and the Civil Aeronautics Board.

The House Committee on Expenditures in Executive Departments started hearings on legislation introduced by its chairman, Rep. Carter Messers (D-Ala.), while the Senate Judiciary Committee, headed by Sen. Pat McCarran (D-Nev.), began hearings on a companion bill.

The bills give the President only a minimum of powers necessary to redesign Washington agencies from a time to a reorganization organization.

Under the bill, however—
 ▶ The President could re-create the

CAA and CAB as an independent authority, giving Congress a sixty-day period in which to veto the reorganization.

▶ The President could transfer the CAA and CAB to the Interstate Commerce Commission, but Congress would still have a sixty-day period in which to veto the transfer.

▶ A Department of Transportation under a Cabinet Secretary and including the IBC and the CAB could not be created, because of prohibitions against the creation of new executive departments and against abolition or transfer of powers of the ICC.

Meanwhile, Judiciary's chairman McCarran told ANTWERP News that he planned to confer with the President "in the not distant future" concerning the reorganization legislation and would, at that time, recommend to the chief executive the creation of an independent CAA.

The President, however, is known to favor transfer of CAA and CAB to the ICC.

Airmail Pickup Aids Considered By Senator

The introduction of legislation to promote the development of a nationwide system of pickup airmail feeder services is now being moved by Sen. Pat McCarran (D-Nev.).

Although the senator has not decided upon provisions to include in the contemplated legislation, he believes that a formula should be established for granting subsidies to feeder pickup operators, which would encourage the inauguration of such services and prevent the necessity of each new operator presenting an individual case to the government in order to obtain

a subsidy, but which would need, at the same time, "snail" the government in supporting basically un-economic services.

Pacific Coast Ban On Flying Lifted

Major General H. C. Pratt, outgoing general of the Western Defense Command, has lifted all military restrictions on civilian flying activities at night (PWT), Sept. 5, 1945, according to an announcement issued in San Francisco.

The proclamation, which reverses restrictions imposed by Public Proclamation No. 32 issued February 2, 1945, abolishes restricted flying zones and returns the entire control of civil aircraft operations on the Pacific Coast to civil aviation.

A spokesman for the Western Defense Command pointed out that many regulations have been put in effect by the Civil Aeronautics Administration and that civilian pilots should not assume that such regulations have been altered and applicable management is made by the CAA. Regulations imposed by military laws and executive orders are also in effect. These include those prohibiting the making of photographs or sketches of vital military and naval installations or equipment, and those prohibiting the use of such information. Such information has been obtained from the proper authorities.

AIA Export Parley

Export committee of the Aircraft Industries Association held a two-day meeting last weekend to discuss export problems which have arisen with the end of the war. Financing, foreign market possibilities and sales and service for American aircraft abroad were on the agenda. Irving Taylor, Douglas Aircraft, is chairman of the committee.

AVIATION CALENDAR

Oct. 1—National Aviation Day, State Aids Day, Airline Week, St. Louis.
 Oct. 2—Navy Navigation Conference, Portland.
 Oct. 3—National Air Transport Week, New York (NATW), at Washington.
 Oct. 4—National Air Transport Week, New York (NATW), at Washington.
 Oct. 5—National Air Transport Week, New York (NATW), at Washington.
 Oct. 6—National Air Transport Week, New York (NATW), at Washington.
 Oct. 7—National Air Transport Week, New York (NATW), at Washington.
 Oct. 8—National Air Transport Week, New York (NATW), at Washington.
 Oct. 9—National Air Transport Week, New York (NATW), at Washington.
 Oct. 10—National Air Transport Week, New York (NATW), at Washington.
 Oct. 11—National Air Transport Week, New York (NATW), at Washington.
 Oct. 12—National Air Transport Week, New York (NATW), at Washington.
 Oct. 13—National Air Transport Week, New York (NATW), at Washington.
 Oct. 14—National Air Transport Week, New York (NATW), at Washington.
 Oct. 15—National Air Transport Week, New York (NATW), at Washington.
 Oct. 16—National Air Transport Week, New York (NATW), at Washington.
 Oct. 17—National Air Transport Week, New York (NATW), at Washington.
 Oct. 18—National Air Transport Week, New York (NATW), at Washington.
 Oct. 19—National Air Transport Week, New York (NATW), at Washington.
 Oct. 20—National Air Transport Week, New York (NATW), at Washington.
 Oct. 21—National Air Transport Week, New York (NATW), at Washington.
 Oct. 22—National Air Transport Week, New York (NATW), at Washington.
 Oct. 23—National Air Transport Week, New York (NATW), at Washington.
 Oct. 24—National Air Transport Week, New York (NATW), at Washington.
 Oct. 25—National Air Transport Week, New York (NATW), at Washington.
 Oct. 26—National Air Transport Week, New York (NATW), at Washington.
 Oct. 27—National Air Transport Week, New York (NATW), at Washington.
 Oct. 28—National Air Transport Week, New York (NATW), at Washington.
 Oct. 29—National Air Transport Week, New York (NATW), at Washington.
 Oct. 30—National Air Transport Week, New York (NATW), at Washington.
 Oct. 31—National Air Transport Week, New York (NATW), at Washington.

Single-Chief Surplus Agency Seen Getting Prompt Approval

Present SPB head warns of disposal crisis within three months as no longer needed aircraft and other war stocks reach "wagging amounts"; Congress appears ready to pass legislation for new organization.

Congress appears ready to pass, promptly, legislation creating a Surplus Property Administration, headed by a single administrator, and to postpone action on other proposed changes in the 1944 Surplus Property Act for two or three months.

W. Stuart Symington, chairman of the Senate Property Board, warned members of Congress that war surplus, including aircraft, are reaching "wagging amounts," and predicted a crisis in surplus disposal within three months. He suggested that the ever-declining consideration in government disposition should be speed instead of what he termed the "unstable economic and moral objective laid down in the present act."

Scrap List—In this connection it appears that between 75 and 80 percent of all Army Air Forces planes in Europe when hostilities ceased there and in the Pacific, when the Japs surrendered, will be scrapped. An AAF spokesman estimated that some 28,000 airplanes for which the Army has no further use will be scrapped or abandoned. The exact amount, of course, is subject to change by the Surplus Property Board, but officials there are known to be working on an extensive scrapping program, parts of which already are in effect.

In Congress, bills creating a Surplus Property Administration under a single head were drafted by Rep. Carter Messers (D-Ala.), chairman of the House Committee on Expenditures in Executive Departments, and Senator Robert Thomas (D-Cal.) chairman of the Senate Military Affairs Committee. Thomas personally favors the three-man board set-up, but introduced the other measure for Senator O'Mahoney (D-Wyo.) who was absent from Washington.

Four of the two committees which handle surplus disposal legislation to draw up comprehensive bills making extensive changes in the present Surplus Property Act, were dropped last week after Symington told congressmen that:

▶ A single administrator who could make sharp decisions on the administration of surplus disposals should be established immediately.

▶ Large-scale post-war dispositions have not advanced far enough and that, he has not been associated long enough with the Surplus Property Board to know precisely what changes should be effected to improve the disposal machinery.

Symington informed both Messers and Thomas that he would recommend changes in disposal, and the governing policies of the 1944 act, within sixty to ninety days. The two Congressmen agreed to postpone consideration of surplus property act amendments until Symington's recommendations have been drawn up.

Symington's call for a single administrator was echoed by board members Robert Hurley and Lt. Col. Edward Heller, the two men who probably will make their exit from SPB when the single administrator is established. The appointment of Symington to the post is assumed in Congressional circles.

Job Ahead—In asking for the immediate creation of a single administrator, Symington told members of Congress that "the board has now laid down the general outline of the policies which in its

management should be followed in disposing of surplus property. The immediate task is not to pass any one of declaring policy but one of administration. The board believes that the change to a single administrator will make possible the kind of decisive administrative action that will be necessary to deal promptly and efficiently with the large amounts of property now being declared surplus."

The fact is, however, that the SPB has not submitted one of the numerous policy-making plan documents to Congress, which, under the 1944 act, were due last January.

Speed Favored— Meanwhile, there appears to be strong support on Capitol Hill for Symington's suggestion that speed should be the primary consideration in government dispositions so that surplus properties can be placed in the hands of private operators as quickly as possible and put to work creating additional industrial activity and employment opportunities. Many members of Congress are clamoring now for the "showing up" provisions of the 1944 act, designed to achieve long-range economic objectives, such as practices for sale of property, preference to small business instead of large concern, and the like.

DeHavilland Lightplanes

DeHavilland Aircraft of Canada, Ltd., is expected to start production, some time in the future, of lightplanes and perhaps a pair of



NEW USE FOR PONTOONS:

A head-on view of a seaplane repair platform affording multi-purpose pontoons. Shown transposing a Martin PB4V patrol bomber, the platform is used to bring damaged and unpowered planes to repair bases. The platform is built of the same five-by-five steel beams which DeSesue use in construction of casements and supply bases.

acquer version of the Mustang, as is the parent company in England.

Contracts cancelled at the Canadian plant cut Mustang production from 1,800 to 1,113. G. A. C. Best, general manager, said Mustang remains to be completed and test flown. The plant is expected to close down production in about eight weeks with some 3,700 workers let out at that time. No plans have been announced as yet regarding reconstruction of the big plant which is government-owned.

Non-Schedule Group Nears Airline Fares

Los Angeles-San Francisco service anticipates eventual out-cumming of established carrier; new planes sought

A new non-scheduled service between Los Angeles and San Francisco is looking toward an operation that can compete with, and undercut, the fares of established scheduled airlines. Whether this can be accomplished probably will be tested within the coming year and the operation is being closely watched by aviation men at other airports as a possible yardstick for similar services between other cities.

► Fare—The Pacific Coast Airways, of which K. W. Decker, Los Angeles manufacturer, is the head, inaugurated service recently with

a one-way fare of \$36 which has just been reduced to \$35, and a trip time of three hours.

The present scheduled airline fare is \$17.43, including tax, and the flying time is two hours at a black to black speed of 155-mph. Decker hopes to be able to cut fares under airline rates and has set a one-way fare of \$12 as a goal. The company operates several types of single engine planes carrying three passengers and a pilot; 14 planes and 12 instrument certified pilots are employed.

► Rate Battle—Experience gained in having carried 300 passengers during the first month of operation has convinced Decker that his proposal of a \$12 fare is entirely reasonable, though he concedes that it cannot be done with an in-flight fuel of 12 planes or 41 speeds provided by his present equipment.

His low fare forecast is predicated upon the possession of new planes carrying four passengers and pilot and matching or increasing scheduled airlines' cruising speeds. He believes that such an operation will require a minimum fleet of 28 planes, 13 making out round-trip each, and five held in reserve at maintenance and overhaul depots.

How soon the scheduled airlines operating between Los Angeles and San Francisco—United Airlines, TWA, and Western Air Lines—will have to begin considering

themselves with this wholly unexpected threat of competition will depend upon how soon Pacific Coast can obtain equipment approximating Decker's requirements.

► Fleet Standard—The company may be expected to confine operations under fares slightly higher or than those of scheduled airlines, until their plane requirements are met. As rapidly as possible its fleet will be standardized by purchases of YKS Waco airplanes. And, it may experiment with adding new routes on the West Coast if post-war air travel justifies the move.

The operation of Pacific Coast Airways should provide in coming months considerable operating information both to other operators who contemplate inaugurating such service and to the Civil Aeronautics Board.

Operations began between Grand Central Airport, Glendale, midway between the Los Angeles downtown area and Lockheed Air Terminal, and San Carlos Airport, south of San Francisco's Mills Field municipal airport. Subsequently the company shifted its northern terminal to Mills Field, which also is the San Francisco terminal for scheduled airlines. Negotiations are under way at the present time to move the southern terminal to Lockheed Air Terminal, also a center of scheduled airline operations.

► Safety Rules—Decker's flight personnel adhere to CAA scheduled airline safety procedures and, if a flight is canceled or interrupted by weather, follows scheduled airline procedure in paying the hotel, meals, and train or bus bills of passengers.

Pilots of the company are untrained, and for passengers who are interested provide a running account of the trip's proceeds and navigation.

Rating Withdrawals Demanded By WPB

The War Production Board has warned that prime contractors and subcontractors, whose military orders have been put back or cancelled, must promptly withdraw the ratings they have extended to their suppliers.

WPB pointed out that the contractor must immediately withdraw any extensions of the rating he has made, in orders placed by him with his suppliers for more

than \$25 worth of material. If the order is partly cancelled, the ratings must be reduced accordingly.

► Material Held—This requirement does not permit a contractor to allow the extended ratings to re-

main in effect until his suppliers have delivered the materials for which the rating was extended and which are no longer needed to fill the contracts or terminated contracts.

Aircraft Procurement Rule Revisions Asked By Builders

Seattle session of Mead War Investigating Committee hears spokesmen for leading airframe concerns attack 13 plane limit on government orders for new types; combat group-size ouster requested

Large-scale government orders for new aircraft types for the two-fold purpose of linking aircraft experimentation with production and enabling manufacturers to sustain their working times during the wartime period, was attacked, by spokesmen for leading airframe concerns at recent Seattle hearings of the aviation subcommittee of the Senate's Mead War Investigating Committee.

Pointing out that present procurement regulations set 13 as the fixed number of new type planes which can be ordered from manufacturers, aircraft men called the regulation "outdated" and "unduly restrictive."

► Group Test—A sufficient number of new-type planes should be ordered, they stated, to enable the military services to test the type as an actual operational group. Thus, if a service test order for B-29s were now to be placed, W. E. Reed, vice-president of Boeing Aircraft, suggested, instead of ordering 13 planes, require by procurement regulation that the military services should order 46 planes, since a B-29 group is composed of that number.

For a service test order of fighters, Reed proposed that 90 planes be ordered, since a fighter group is normally composed of that strength.

Satisfactory prototype testing of new military plane types can be achieved, during peacetime, only by preparation of a complete operation group, aircraft men told the senators.

► Production Problem—Furthermore, under the 13-plane order, it was pointed out, the manufacturer does not plan his model for production, war design tools for the mass production of the plane—two factors which, in the case of an emergency, would be as vital as the

existence of the advanced type plane itself.

Witnesses who appeared before the Mead subcommittee, headed by Sen. Hugh Mitchell (D-Wash.) were: Beale C. L. Kight, chairman, Boeing; Harry Wadsworth, president, Consolidated; Valter Ward Boomer, chief of aeronautical research, Lockheed Aircraft.

J. H. Kinkelberger, president, North American Aviation; John E. Harthrop, president, Northrop Aircraft; Arthur Raymond, vice-president, Douglas Aircraft; Lucian W. Shaw, assistant to the president of Lockheed; H. C. Thomas, president, the Aircraft Parts Manufacturers Association.

► Research Time—Reporting that

time spent on aircraft research at Boeing jumped 744 percent between 1941 and 1944, Boeing witnesses called attention to the increasing complexity of aircraft development and the spreading costs which must be absorbed by engineering and designing research.

Recommendations made by the aircraft men, as methods of keeping American aviation in world leadership during peacetime were:

► That the government at all time have a minimum of two preliminary design studies for each type of category of aircraft placed with the industry.

► That the government let experimental contracts for three phases on new models which preliminary design studies indicate feasibility of development.

► That experimental plane models which are proven be ordered in sufficient quantities to enable the government to produce them.

Requests and permit complete proving through operation group recoveries.

Aircraft men called for a "far-sighted attitude" on the part of the government, with reduction of costs for speed testing on future aircraft orders.

In the disposal of surplus aircraft plants, West Coast aircraft manufacturers denounced the school of thought favoring establishment of an inland aircraft industry for

Army-Navy Air Procurement

Clearer delineation of Army and Navy aircraft procurement policies is expected shortly, by this week, with the submission to Congress of a report drafted at the direction of President Truman.

Although its exact nature is still kept confidential, it is understood to follow broad lines generally approved by various agencies in Washington at least in the national decision—whether the research will be undertaken by AAF facilities at Wright Field, the National Aeronautics Laboratory, the Army, or by the aircraft industry.

This letter is a point which is causing the greatest concern in the industry. Spokesmen emphasize that there must be a delineation of where government research should stop and industry begins. Otherwise, there is a risk that industrial research facilities will deteriorate from lack of maintenance and that the government's research in general will suffer.



EIFFEL TOWER SHELTERS AAF SHOW:

Ground operations assemble transport planes, gliders and a Northrop Black Widow night fighter at an outdoor show, in Paris, of the AAF planes which helped knock out the Germans.

strategic purposes. The West Coasterns pointed out that with bases now flying the Great Circle route, the West Coast is one of the least vulnerable locations in the country.

► Bush Protection—Consolidated's Woodhead pointed, however, to the desirability for "dispersed" or "integrated" aircraft plants in different parts of the country so that the nation's plane manufacturing industry could not be wiped out in a few bombings.

If there are sufficient military orders, Woodhead reported, this can be accomplished. He said that Consolidated-Vultee has offered to lease both its large San Diego and Fort Worth plants going, if there is sufficient government work to warrant their operations, but that if a choice must be made, the firm will abandon the Fort Worth location.

Woodhead took an emphatic stand against returning surplus aircraft plants in standby condition for operations during a future emergency. They should be sold for whatever purposes they can be used, he declared, and make a contribution toward national progress and employment opportunities. Plans in standby should be sold for whatever purposes they can be used, he declared, and make a contribution toward national progress and employment opportunities. Plans in standby should be sold for whatever purposes they can be used, he declared, and make a contribution toward national progress and employment opportunities.

U. S.-Britain Air License Exchange

Pending acceptance by the Provisional International Civil Aviation Organization, the Great Britain Government has drafted and sent laws based on those drafted last November at Chicago. The U. S. is expected shortly to agree with Great Britain on a reciprocity in the granting of pilot's licenses.

Annex E, proposed to be attached to the permanent convention on civil aviation, sets forth pilot requirements which will be binding on all signatory nations when approved. From this is expected to come some form of international license which would make unnecessary such reciprocity as now being discussed.

► Pilot Exchanges—However, it is not known when Annex E will be taken up by the technical committee of ICAO. The first of the 12 draft annexes is to be studied beginning October 2. Upon its approval, either in principle or in amended form, Annex E will become part of the permanent convention which will

Commercial Radar Planned On Coast

Equipment that can land planes every 30 seconds, regardless of weather, announced by Giffels.

Ground Central Approach radar equipment that can land an airplane every 30 seconds, regardless of weather conditions, is being developed for peacetime commercial aviation use by Giffels Inc., Los Angeles, it was announced last week.

The equipment, which has already been put to severe service tests at Army Air Force bases in the European and Pacific war theaters, was first developed in 1942 and put into service in 1943. It has been held secret until released recently by the War Department.

► Portable Unit—Operated as a portable unit which includes a truck and trailer, the GCA equipment may be stationed at any point and may be used in connection with the equipment to prevent airport control equipment.

For the past two months the GCA units have been under test at the Civil Aeronautics Administration experimental station at Indianapolis municipal airport. Equipment there was loaned by the War Department to CAA, and

requires five operators. Cost to the army was reportedly about \$370,000, per set.

A recent demonstration at Lockheed Air Terminal, by the Army, required three operators. The manufacturer has disclosed that his engineers are working on a "peacetime" model of the landing control, which perhaps may be less costly and require less personnel.

Giffels engineers estimate that their sets have a waiting market at 25 major continental airports. The equipment is entirely a ground installation, with no device required in the plane. The operator directs the approaching plane on the radar screen and then "tells the plane down" by voice radio, to a proper landing.

In describing the system, a company spokesman announced, ap-

"It's one of our air fields will mean great savings of life, planes, cargoes and equipment in the exposed air traffic that is ahead of us. It can save large sums and much time by preventing the cancellations and delays scheduled."

Among GCA's other attributes, the manufacturer reports, it will: Kill planes onto any air field safely through fog, storm, darkness and other flying hazards.

► Guide planes safely around buildings, mountains, or other aircraft in all weather conditions.

► Control many planes at one time, keeping them clear of necessary at different elevations to prevent collisions.

The 10 second landing rate compares with a three-minute interval required for instrument landings in a recent CAA experimental demonstration at Indianapolis, in which the Giffels equipment was not used.

Separation of CAA-CAB From Commerce Urged

Representatives of the federal aviation agencies, both Civil Aeronautics Administration and Civil Aeronautics Board, from their present connection with the Department of Commerce, and restoration to the independent status at again being strongly advocated on Capitol Hill.

It was reported that one group of Republicans was offering to block the proposed airport bill, and aviation could be affected. If the CAA-sponsored airport bill gets by the committee it is scheduled to pass in both houses. The House who have returned to Washington with economy lectures from their constituents ranging in their own.

PRIVATE FLYING

Small Airport Building Bans Expected To End In 60 Days

Two-month limit set for WPB restrictions on new construction; officials assert private flying facilities will get secondary consideration until then; most materials already available.

By ALEXANDER MCGURLEY

All WPB construction restrictions which have been holding back new work on small airports, are expected to be discarded within 60 days, AVIATION NEWS learned last week.

A WPB spokesman disclosed, however, that until whatever time the controls are lifted, the small airports for private flyers will not receive as much consideration as "main-line" airports in release of permits.

► Plans First—And, generally speaking, all airport construction is regarded as secondary along with many other types of construction, to any construction of manufacturing plants which may give continuing employment to large numbers of displaced war workers.

Considerable airport construction, particularly grading and runway construction, is getting underway already, however.

WPB recently gave clearance for some construction projects at 31 airports under a federal aid program authorized by Congress several years ago but delayed by wartime priorities. The projects, widely scattered throughout the country, involve expenditure of \$8,465,256 for paving, grading, drainage, lighting and similar work.

► No Priorities—The clearance did not give priority assistance, and CAA surveys engineering division reports some difficulty in letting contracts because of this. However, the contracts are being advertised and better results are anticipated.

Investigation of material sources indicates that WPB controls are not largely a matter of policy, since most construction materials, with a few exceptions, are readily available.

Lumber, cast iron pipe, and brick are still required in all materials, but shortages in all

three are attributed to insufficient labor, at production points, rather than any lack of materials themselves.

► Lumber Lag—The lumber shortage may continue several months, but the labor turnover now in progress is expected eventually to provide the additional manpower with shortages ended probably by the first of the year.

Other basic materials such as concrete, asphalt, sand and gravel, are available. The transportation problem the main difficulty. Airport lighting equipment, previously tied up by Army-Navy orders is now open to civilians, as is radio equipment.

A considerable stock of supplies used in airport construction currently is in inventory for the Army and Navy, and much of it eventually will be surplus, and available for civilian use.

► Field Lights—Airport boundary lights, and other lighting equipment is among this, although the condition of the equipment varies. Some portable field lighting systems were up by the Army, now in surplus, and might be used by some fields for a temporary system, pending a more suitable permanent installation.

Until WPB does lift construction controls, airport projects are still subject to WPB clearance. Local government units or individuals contemplating new airport construction or improvements in their existing fields, must file with WPB Form 617, obtainable at local WPB offices, and file this as a request for authorization.

Short steel, which is being forged as a lightweight, larger man-made, or steel will be, plentiful supply, since it was largely used for Quonset hut construction for the military forces; similar to the type of hangar construction which is being projected. It is made by the brick and lumber shortage.

Michigan Base

Expansion of the Pontiac (Mich.) City Airport to provide servicing and hangar facilities for 500 new private planes is now in the planning stage.

By Cuthbert, chief airport engineer for the Detroit engineering firm of Giffels & Valtiel, Inc., in charge of a study for the siting and design of the expanded field. The study has been recommended by the Michigan state board of aeronautics, one of the country's proximity to Detroit and to several high income suburban communities makes it a logical future base for personal planes in the area.

► Builder Record—The Pontiac contract makes the 66th airport in Michigan, and the 10th in Central America which has been engineered, in whole or in part by Giffels & Valtiel.

will mean that sheet steel, concrete, concrete block, and other black will probably be the leading hangar materials in the immediate future.

► Pleasure Trips—WPB officials appear to be small airports for the private flyer, not used for airport as "pleasure airports" and, as such, less essential than other types of industry.

The planners of private airports are planning with care and preparing the field, with expectation that by the time this part of the job is completed, the WPB bid will be off and they will be able to place contracts for building construction. The field will be placed in some other builder who has been designated by WPB as "more essential."

Lockheed Air Terminal Probes Peacetime Uses

Expansion of field and hangar facilities at Lockheed Air Terminal, Burbank, Calif., are contemplated, with an engineering survey of peacetime uses of the airport already started.

The Lockheed terminal today is overgrown with aircraft. The acting manager says the recent recognition of Dudley M. Steele, has been forced to reject requests of non-scheduled operators to lease space.

► Night Frequency—While a forthcoming shift in terminal



"Swift" Reve Up: Manned photo of the two-place Glabe Swift prototype shows the plane revving up in preparation for takeoff. Wing-slats, hydraulic retractable landing gear, and sliding cockpit enclosure are shown clearly.

operations from Lockheed to Los Angeles municipal airport is expected to affect the Lockheed field's present income, there appears a strong possibility that the number of flights to and out of the Burbank field will not be materially reduced, since its location, at least for supplemental service, is well suited to a large portion of the Los Angeles metropolitan area.

High School Flight Program Succeeds

Approximately 300 Tennessee students from 41 high schools were given flight experience under a recent experimental program conducted by the Tennessee Bureau of Aeronautics with 13 flight operators participating, with a perfect safety record, a report by the state director of aeronautics education disclosed.

A questionnaire answered by 72 of the students, showed the following opinions:

- ▲ Aviation has equal value with mathematics and science as a high school subject.
- ▲ Thirty-one students said they learned more geography from aviation studies than from geography courses in school.
- ▲ Sixty-three believed that the high school student should pay part of the cost of flight training (in the program the students paid all the cost).
- ▲ Parents of the students were also requested to answer a questionnaire, in which all replies indicated that class work in aviation and flight experience should be a part of the high school curriculum.

Operators reported a general increase in flight training as a result of the course. Of the 72 students replying to the survey, 49 were continuing to take flying les-

sons after completing the four hour flight experience course, while 8 had entered the armed forces and the remainder were working or could not finance flight instruction.

▲ Reports from operators included: Wood's Flying Service, Knoxville, 9 students continued to fly, 7 have already soloed; Miami Flying Service, private business has doubled since beginning flight experience program.

Handy Flying Service, Union City, 2 girls and 3 boys have gone on to solo, and three other local clinics have enrolled for private courses.

Knapf Flying Service, Clarksville, 4 students continued, and 8 others not in the classes, took 43 additional hours. Buck's Flight School, Chattanooga, 15 new students and 3 private courses are attributed to the school course.

"AI" Cards Halted

Renewal of the requirement for an "airman's identification card" ordered last week by the Civil Aeronautics Board, further simplifies the steps toward becoming a private pilot.

Under temporary wartime regulations all pilots had been required to carry an identification card, issued by the Administrator of Civil Aeronautics, containing the pilot's photograph, fingerprints, and signature, as a document identifying the pilot as a member of the Army, Navy, Marine Corps or Coast Guard.

▲ **Licenses Only**—The CAB last week repealed Section 48-401 of the Civil Air Regulations, which had required this identification. Hereafter pilots will need to carry only their pilot certificate and medical certificate.

Swift Powerplant Raised To 115-Hp.

Glabe two-place lightweight plane drop optional engine feature to raise speed, climb, range.

Increased power for the Glabe Swift will be provided by the use of a 115-hp. engine in the two-place plane instead of the optional 85 or 100-hp. powerplants previously announced.

John Kennedy, president and general manager of Glabe Aircraft Corp., Ft. Worth, Tex., has announced that the Swift's new powerplant will be a six-cylinder horizontal opposed Continental engine, expected to step cruising speed of the airplane up to from 135 to 140-mph. using 15 percent of power.

▲ **Same Structure**—The new engine will not increase weight or size of the present engine nacelle, but will insure a 400-hp. takeoff run, 330-ct. per minute rate of climb, and lift the service ceiling to more than 10,000-ft.

Earlier performance figures announced with the standard 115-hp. engine, had shown a 115-mph. cruise, 300-ct. climb, and 14,000-ft. ceiling.

Glabe has also announced that the production Swift will be an all-metal plane, with metal-skin wing, instead of the fabric-covered plywood wing originally planned.

Prices of \$3,200 for the 45-hp. version, and \$3,650 for the 105-hp. version, which were tentatively quoted previously, will be revised upward to cover the additional cost of the higher-horsepower engine.

▲ **Prediction Date**—First of the production Swifts is expected to appear "after Oct. 1," although quantity production and deliveries to customers may be delayed until around the end of the year.

Hydraulic mechanism for retracting the Swift's landing gear, is connected with red and green indicator lights on the instrument panel showing whether or not the wheels are down. Spring-loaded pins automatically lock wheels in down position so soon as the gear is extended. An auxiliary manual device for lowering gear is provided as assurance against failure of the hydraulic mechanism.

Sleets and flaps and the dihedral angle of the wing and of the horizontal stabilizer give the plane exceptional directional and longitudinal

stability, under all flight conditions, the company reports. ▲ **More Features**—Additional "in-

novations" are to be incorporated on the Swift within the next few months, Kennedy said.

Southwest Private Flight Boom Previews Vast Peace Expansion

South Region CAA officials warned by pilot license certification requests in record breaking numbers; 1,000 new planes in area during year; written examinations increase 240 percent.

Optimistic preview of the potential peacetime expansion of private flying is found in the report of a boom which has already started among private flyers in the South CAA Region, including California, Utah, Nevada and New Mexico.

Small airport operators, flying schools and private flyers are producing a volume of work which is taxing the staff of H. A. Hook, South Region CAA administrator, to capacity.

- ▲ Within the last six months:
- ▲ Student certificates granted have increased 148 percent.
- ▲ Identification cards granted have increased 146 percent.
- ▲ Written examinations given have increased 240 percent.
- ▲ Pilot certification and ratings issued have increased 168 percent.
- ▲ Aircraft certificated have increased 170 percent.

The region's staff of 32 inspectors are well behind the pre-war number, is 30 days behind in aircraft certification and unable to keep up with the demand for pilot tickets. Harold Bromley, regional inspection chief, reports. Designation of private pilot flight examiners is expected to relieve part of the backlog.

▲ At Phoenix, Ariz., 591 applications for private licenses were made in a single day, most of them for ex-Army pilots, more than 400 at Oklahoma City. The CAA is receiving an average of 150 pilot applications a week.

▲ **Mechanics' Reaction**—Appointment of civilian aircraft and engine mechanics to make inspections for aircraft certification, as an attempt to speed up this process, has not been too well received by the mechanics, since they are not permitted to change for the service CAA assumes they will profit ultimately by thus afflicting manufacturers with increased complaints in about the two-to-five

hours of paper work for each inspection. A new CAA form 309, new printing, is expected to reduce paperwork to from one-half to one-third present volume.

In Los Angeles alone, the General Inspection Division gave 338 examinations in June and 1,636 in July. The region is issuing pilot certificates to military pilots at the rate of 1,000 a month, and an increase is expected.

In the last nine months, 1,000 surplus aircraft have been sold in the region, and more aircraft are ready to be certificated than can be handled at the present time. A recent visit to one airport in San Diego disclosed more aircraft there than were located in the entire San Diego area before the war.

▲ **Field Radio**—One small airport exclusively for private flying, reported 90 takeoffs and landings an hour at peak periods on Sundays. On Jan. 1, 1945, there were 34 designated airports in California, whereas today there are 113 of which 98 are approved for flight training.

Still further increase in all kinds of flying is expected with final lifting of all flight restrictions on the west coast by military authorities.

bay additional planes, some with higher horsepower rating, and a number of Republic Seabee amphibians.

Newspapers pay \$5 an hour for dual instruction and \$3 an hour for solo time. Thirty-two Redbird club members have school and are completing time for private licenses. Ground school courses are conducted at night, and, in the night, when licensed instructors demand navigation, meteorology, plane maintenance, parachutes, civil regulations and the theory of flight. Flaps are used in connection with the lectures.

The club flying operations are conducted at Republic Field, Farmington, L. J. Offices include Phil Dorrer, president, Russ Nordman, vice-president, Hugh Burke, treasurer, George West, secretary.

War-Used Airports Readied For Release

The armed forces are making plans to return to civil control many civil airports which have been leased or otherwise acquired by them during the war so soon as determination can be made that no further military or naval need for their retention exists.

The Army and Navy reported that final determination is dependent on an analysis of the airports "undetermined" factors such as the future international situation, the extent of participation in any international organization, the use and deployment of the armed forces as required by the armistice and the status of aeronautical development at the home base.

▲ **Interim Use**—Pending final decision, fields will be made available in permit for post civil and military use so long as this does not interfere with essential military and naval operations. Fields returned by the armed forces will be available to civilian aircraft.

Industry Air Club Sets New Pattern

The six-month old Bio-Aero Flying Club, 100-member airport formation formed by employees of Republic Aviation Corp., offers a pattern which may be emulated by employees of many other industrial organizations as these lightplants become available.

The club owns five light trainers, purchased with proceeds of a \$76 million for charged each member. The membership is frozen at 100, with new applicants accepted before the next replenishment.

▲ **More Plans**—The club plans to

PRIVATE FLYING—17

those used in Civilian Pilot Training and War Training Service programs. There are now more than 400 Cessna 8-1-A's and B-1-B's in service.

Harlow is receiving estimates of dealer requirements for the first six months of 1946 from former Cessna dealers, and is naming additional dealers in areas where Cessna formerly were without representation.

CAA Approves 30 Lightplane Licenses

The Civil Aeronautics Administration has issued 30 new airworthiness certificates for lightplanes purchased from military surplus by individuals and firms. List of the aircraft, numbers, buyers, make and model of plane, engine, and date of manufacture follows:

- NO 1499—Arnold Bros, 4101 N. Grand St., Los Angeles, California, 10/10/45.
- NO 1507—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1510—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1511—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1512—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1513—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
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- NO 1599—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1600—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.

Briefing For Private Flyers and Non-Scheduled Aviation

Private plane designers may well take a tip from a robust, forty-ish business man we know who wants to fly an airplane in his business and can afford to own one. But—he isn't having any until he finds a plane which a non-athlete, slightly overweight man can enter and leave without undue exertions, and which provides room enough for his comfort. He asserts he has seen no plane in the moderate price class which comes close to the comfort to be obtained in even the low-price automobiles. And he thinks designers are missing an opportunity by not meeting the comfort and convenience requirements of the business executive who should be one of the biggest buyer groups for personal-type planes in the early post-war period.

FAIRCHILD PROTOTYPE—A "grapevine" report from Hagerstown, Md., says that the low-wing Fairchild four-place personal plane prototype should be ready to fly within the next two months. How soon Fairchild will get this plane into quantity production is still undetermined. Chances are that the first Fairchild plane on the post-war market will be the private plane class which has a slightly revised version of the all dependable T-34 high-wing plane. And it may not be built at Hagerstown, because of commitments there on the huge C-47 flying boxcar plane.

SKYLARK PLANE—A stepped-up production schedule on two new prototypes of the Skylark personal plane, is expected to enable both planes to make their first test flights by mid-fall. Meanwhile the Skylark Manufacturing Company, Venice, Calif., will continue production of steel tube structures for aircraft, surface ground equipment such as passenger ramps and cargo loading equipment and related products.

NEW YORK AIRMARKING—More than 500 New York communities have been asked by the state bureau of aviation to participate in a state-wide volunteer marking campaign. Questionnaires have been sent out to the communities which, when filled out and returned to the bureau, will bring detailed instructions as to how to proceed. The markings called for by the state comply with recommendations of CAA's marking specialist, Blanche Noyes, to include the community's name, its latitude and longitude as near meridian and an arrow showing direction and distance to the nearest airport. Yellow letters on a black background are recommended, with letters of size to make them legible with good visibility from 3,000-ft. altitude. Large flat roof tops in the center of communities or near main highways or railroads are preferred sites for the markings.

BRITISH ORDERS—Orders have already been received for more than 1,000 Austin lightplanes, by Taylorcraft, Ltd., in England, which has just been granted official authorization to begin civil plane production. First models of the Austin, powered by a 150-hp. engine, with a 140-hp. engine option, are expected to be delivered within a month. Price of \$2,300 has been set for the plane, which eventually will be produced in three- and four-place models as well as the standard two-place version.

FIRST AERONCA—First post-war production Aeronca, the two-door "Champagne," was scheduled to be completed last week at the Middletown, Ohio, Aerona plant. The company has previously "hand-built" several "Champions" which have been circulating among dealers and distributors for demonstrations. The "Chief," a side-by-side, two-place with power deluxe equipment, and the "Chief," two-place spin-proof plane built under Engineering & Research Corp.'s wing plan, will follow. Prototype of the spin-proof plane may be flying within the next few weeks.

—Alexander McFarley

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- NO 1599—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.
- NO 1600—J. M. Davis, 1001 S. 10th St., Phoenix, Ariz., 10/10/45.

THAT'S WHAT THE MAN SAID!

Scared stude sits down... too, too sudden! Little Betty bounces like a B-24, goes into a ground loop, stops with a starboard tilt and a slight lean. Not casualty—one lunch...

So the CAA man looks her over, washes out Betty for work without a few replacements... right here, wheel, brake parts, wingtip light, exhaust pipe, intake screen, fabric, etc., etc., eleven stickers in all. Said stickers made all over the map from L. A. Cal. to Springfield, Mass!

Students appointments schedule shot! Reserve hours lost waiting for replacement parts!... Make the best of a bad break by making a full list of replacements; and were, phone or airmail your wants to Air Associates!

ONE SOURCE. What one AA warehouse may not have, one of the other three will—and teletype transmission between four AA sites makes fast tramplay... What we haven't got, we know where to get... And your order is filled and on the way to you as fast as mail, post office and airmail can carry it... Save time, grief and paperwork by doing business with one supply source for everything—instead of several... And for the largest airlines or lone owner, AA service is standard and the same... List the addresses below for ready reference in time of need.

AIR ASSOCIATES INCORPORATED

TWA
THE TRANSCONTINENTAL
AIRLINE

UNITED AIR LINES

R-R
AIRLINESA
AMERICAN EXPRESS
AIRLINESColonial
AIRLINESAAA
AIRLINESCONTINENTAL
AIRLINESPCA
AIRLINESBoeing
AIRLINESEASTERN
AIRLINESPAA
AIRLINESC & S
AIRLINESNORTHEAST
AIRLINESMID-CONTINENT
AIRLINESALASKA STAR
AIRLINESNORTHWEST
AIRLINESDelta
AIRLINESNational
AIRLINESINLAND
AIRLINESWESTERN
AIRLINES

Pace Setters for the World!



IMMEDIATELY after Paul Harbar, the airlines gave up half their planes to a hard-pressed Uncle Sam. Then, as the tempo of war picked up and the nation demanded speed and more speed, the men and women who fly our sky routes turned in one of the greatest jobs in transportation history.

Working against terrific hardships in shortage of equipment, the airlines carried more and more and more. Passengers and freight increased. The load rose from 1935 to 1941 to an "impossible" 90% in 1944. Planes put in more and more hours per day ... until many were flying eighteen out of twenty-four, and only perpetual overhaul kept them going.

Through three long, tough years, maintenance crews fought the battle of the inventory, worked to keep America's precious, time-saving handful of commercial ships in the air and on schedule. Mouth in and mouth out pilots flew their own and others' ... delivered them for speed ... hung up new safety records ... delivered mail, goods and people to keep the war effort moving at an ever faster pace.

Today, with relief in sight, the airlines are pointing the way far postwar America and the world. Against high wartime operating costs, they recently announced new cuts. Airline route mileage in U. S. is at an all-time high of 67,937 miles. Freight carried is nearly four times

Buy More War Bonds and Stamps

the prewar load. Total passenger miles last year were nearly a billion higher.

If air transport can do such a tremendous job in the face of wartime shortages of personnel and equipment, what will it do in peace? With a gear body of schooled pilots and mechanics to draw upon and suitable equipment of a quality, carrying capacity and operating efficiency that were scarcely dreamed of in the prewar days, the sky's finally the limit.

It will be a privilege for us to join forces with this industry in building the coming Age of the Air!

Look to Jack & Heintz for better things for flying!

JACK & HEINTZ
Incorporated



Stock and bonded issues, aircraft insurance, lease, maintenance, and all aircraft engine services, ground support, ground support, ground support, ground support.

PERSONNEL

Cregier Heads Sales For Commonwealth Inc.

John H. Cregier, Jr., formerly of Consolidated Value Aircraft Corp., San Diego division, has been appointed sales manager for Commonwealth Aircraft, Inc., New York and Kansas City. Ken He will supervise all sales operations on the company's new *Treasure* amphibian which is slated for production within the next 30 days. Cregier has been associated with the aircraft industry and with airlines for more than 16 years.

Richard W. Baker (photo) has been appointed district traffic manager of American Airlines, Inc., in Philadelphia. Baker's appointment fills a position which was left vacant for the 18-month period that commercial service was suspended to Philadelphia. He has been with American since 1937, has been reservations manager at La Guardia Field and also in Washington. Before going to Philadelphia, he was assistant manager of reservations and ticket offices for the entire system.

Leslie B. Osborne (photo), former lieutenant colonel in AAF intelligence, has been named eastern divisional traffic manager for PCA. His headquarters will be New York prior to being called to duty in 1941. Osborne had been associated with Pan American Airways and later with Vega Aircraft, a subsidiary of Lockheed, with Pan Am he served in Central and South America and in Miami.

Cammerly F. Robertson has returned to American Export Airlines as flight captain, following military leave during which he served as

supervisor of flight operations for the Air Transport Command at Presque Isle, Me. He has been a pilot for Canadian Colonial Airlines and the United Air Lines. In 1940, Robertson was loaned to the Glenn L. Martin Co. to help in the test flying of the original Mars.

John A. Smith Joins Contract Cargo Group

John A. Smith, formerly regional cargo traffic manager for American Airlines at Los Angeles, has been appointed western traffic manager of the National Skyway Freight Corp. Smith has been affiliated with the transportation industry since 1936, and is a director of both the Los Angeles Transportation Club and the Foreign Trade Association and a member of the World Trade Committee of the Los Angeles Chamber of Commerce. National Skyway Freight Corp. is the West Coast's newest contract non-scheduled air freight service.

Former Army Air Corps Capt. Donald B. Swell (photo), fighter pilot, has been appointed traffic representative in the air mail and air cargo department of Braniff Airways, Inc. Prior to his Army career Swell was assistant manager of a trucking firm. He holds the Distinguished Flying Cross and other AAF decorations received during his more than 300 hours of combat flying.

Leslie H. Hink, vice-president in charge of industrial relations at All-Chemicals Manufacturing Co. since 1941, has resigned to accept a post with McGraw-Hill Publishing Co. in New York. Hink formerly was assistant manager of the electrical department and holds approximately 40 patents as electrical machinery. He has been active on the War Labor Board and was President Truman's first appointee as a full industry member of the Board.

Director of the Bureau of Aeronautics of the New York State Commerce Department, succeeding Leslie A. Bryan is William K. Collins, Jr., who formerly served Bryan as airfield engineer. Bryan is returning to the faculty of Syracuse University, from which he took a leave of absence in May to become director of

the newly-created Bureau of Aviation. From November 1941, until joining the Commerce Department, Collins held the position of district airport engineer of the Civil Aeronautics Administration in charge of airport activities in New York and New Jersey.

Prescott Mabry Appointed Republic Lightplane Aide

Prescott H. Mabry, well known in aviation circles, has been appointed assistant sales manager of the Personal Plane Division of Republic Aviation Corp. A commercial pilot since 1930, with about 3,000 hours of flight time to his credit, Mabry was with the Civil Aeronautics Administration until he joined Republic in 1942. Prior to his present appointment he was assistant director of market research, service supervisor, and sales representative of the Personal Plane Division.

Stewart A. Cameron has been named manager of the New World of American Airlines, Inc. Cameron joins the airline after a long career in the newspaper, wire service and public relations field, having served with the National Association of Manufacturers and later with the Fred Kleban Organization, which directs public relations for the Airlines Committee for United States Air Policy. He will make his headquarters in America's executive office in New York City.

Ivan Ballou has been named lease promotion manager for Pan American World Airways. His activities will be of a fact gathering nature to assist travel agents, as the airline has not started to operate. Ballou is a veteran in the investment field, having been with Degroot, world-wide lease operator, prior to joining Pan American.

Robert M. Evans, formerly associated with the Kaiser Industries on the Pacific Coast, has been appointed district traffic manager of Braniff Airways, Inc. at Denver. He has assumed the position left vacant by the promotion of E. K. Westbrook to Western division manager. Evans was employed by the Dupont Co. for a while in connection with the development of the atomic bomb.

Obituary

Alfred Frank, 51, founder of National Park Airways, which later became a part of Western Air Lines, died August 3, in Los Angeles. Frank, a mining engineer, headed the airline in 1935 and in almost 2 years served as a director of Western Air Lines. He secured the first license from the Post Office Department to operate air service between Salt Lake City, Utah, and Seattle and Great Falls, Mont.



ELECTRIFYING the Road to Tokyo

Curtiss Electric Propellers now add to the demonstrated effectiveness of the Boeing B-29 Superfortress.

Greater striking force—made possible by propeller weight reduction.
Shortened landing run—through aerodynamic loading.
Automatically synchronized propeller speeds.
The unmatched flexibility of hollow steel blades.
The additional safety of electrical propeller control, unaffected by temperature and altitude and with minimum vulnerability to combat damage.

These new advantages for the Superfortresses as the road to Tokyo mean new destruction for the enemy and increased security for B-29 crews.

CURTIS

Electric Propellers



Making a 40-ton shock "DISAPPEAR"!

When a Skymaster hits the runway, the tremendous landing energy of this huge plane quickly "disappears". It's not an act of magic, but the shock-absorbing ability of Aerial landing gear that does the trick! . . . The remarkable stamina and efficiency of Aerola, which protect plane, crew, and cargo from landing shock, account for their universal acceptance for major types of aircraft. . . . Our products, serving many industrial fields, are mentioned below. Whatever your needs, Cleveland Pneumatic engineers offer you the benefit of over 50 years manufacturing experience.

THE CLEVELAND PNEUMATIC TOOL CO., Cleveland 5, Ohio

CLEVELAND DRIVE BRICK



CERAMIC ROLLER



AEROL SEPARATED LANDING GEAR

ORBIT AIR TROOP



CLEVELAND PNEUMATIC

The ATOM

NEW SOURCE OF ENERGY

A Tide in the Affairs of Men

On August 6, 1945, an atomic bomb exploded over the Japanese city, Hiroshima.

Its concussion blasted the city, vaporized the fibre of Japan's will to resist, and flashed across the world a light of such glaring intensity that even blind eyes could glimpse the forked road that is presented to humanity's choice and destiny.

It has been a scant fifty years since Pierre and Marie Curie embarked upon their research with the avowed intent of discovering "how the atoms of the universe are put together". Their work contributed radium to the knowledge and use of mankind, but it marked only a way station upon the awesome quest which they announced and which thousands of scientists have since pursued.

Under the compelling stimulus of war, the first major application of the release of atomic force has been in an instrument that raises by an unimaginable dimension our ability to deleat our death. We can be devoutly grateful that the scientific leadership of the Allies, and particularly the industrial strength of the United States, brought to us, rather than to our enemies, priority in the development of this dread weapon. But even in its present infant phase, it is clear that ownership of the principle of the atomic bomb carries a trusteeship of terrifying gravity. We hold in trust a power that is capable of unravelling the very fabric of our civilization.

Equally, it may be susceptible of development as a mighty force for human welfare. But we have proved the destructive use, while the constructive applications are still in the realm of speculation.

Clearly the trust is of a magnitude that transcends national jurisdiction. No walls have ever been built high enough to fence in the spread of scientific knowledge, and even if we were resolved to forgo the harnessing of atomic power for peace, it is hopeless to think that its application for war can be held for long as the monopoly of one, or a small group of nations.

At one giant stride our scientific and technological development has so far outdistanced our social engineering, that we have no choice but to turn our full powers of creative imagination to control the forces we have unleashed and to bend them to man's use rather than to his destruction.

Since control is not possible without understanding, I have asked several of my editorial colleagues in the McGraw-Hill organization to present on the pages which follow a non-technical but authoritative account of the known facts and implications of atomic power.

James H. McGraw, Jr.
President, McGraw-Hill Publishing Co., Inc.

HOW ATOM SPLITTING

RELEASES ENERGY

Five years ago the world learned that the atom of Uranium 235 had been split, releasing energy at the rate of about 11,400,000 kilowatt-hours per pound. The whole amount tested was less than the head of a pin, but there was no escaping the possibility that bombers, engines, turbines, jets and explosives could be powered by atomic energy. Then began the race to win the war with atoms.

With what help England could give, America entered the best atom-splitting team Germany could muster. It was all done in silence. From the summer of 1940 until the atomic bomb blasted Hiroshima, Meek secrecy blanketed history's most amazing scientific and industrial accomplishments.

Coldly scientific in form, the War Department's "Smith Report," released August 12, 1945, traces

the fantastic course of atomic engineering through the five years of secret black-out. It leaves no doubt that only a complete mobilization of America's scientific resources could have won this victory at time.

Other sections in other places will unfold the epic story. This presentation leaves no space to reflect the glory of the accomplishment or even to record its history. The aim is more immediately practical

— to give the professional and business readers of the McGraw-Hill publications a sound and honest, though non-technical, understanding of this atom-making business, so that they will know better what to do about it in their personal and business lives.

Now for step one: learning the shape of atoms and how atom splitting releases energy.

1. ATOM PARTS



2. SIMPLEST ATOM



3. TYPICAL ATOM



Each of the 92 elements has its own atom, yet all atoms are made from the same three pieces. Fig. 1—proton (weight 1, electric charge +1), neutron (weight 1, charge 0), electron (weight 0, charge -1).

Every atom is a tiny "solar system." Its central "sun" has one or more protons, generally neutrons too. The revolving "planets" are electrons, and for each proton in nucleus, because plus and minus count balance in the atom.

The opposite charges attract, but high speed keeps the electrons out in their circular orbits, just as the centrifugal tendency of the revolving earth defies the sun's gravitational pull. All the weight of an atom is in the nucleus, so add the number of protons and neutrons to get the atom's weight. The atomic number is equal to the number of protons. The elements are known by their atomic numbers. Thus uranium (92 protons) is element 92.

4. ATOM SIZE



With only their extension orbits touching, it would take half a million atoms to span the thickness of a human hair. Yet if one could expand an atom until its outer orbits extended 100 acres, the nucleus would be no bigger than a baseball. The atom is mostly empty space, Fig. 4, and nuclei are difficult targets; so much so that a neutron bullet fired at a mass of atoms may pass right through without a hit.

The almost weightless speeding electrons, Fig. 5, supply all the energy of chemical reactions (as when coal burns or TNT explodes). Even all ordinary chemical action, the immensely greater energy bound up in the nucleus, Fig. 6, can be released only by direct hits on the nucleus to break the bonds that hold the protons and neutrons in a tight bundle.

5. ELECTRON ENERGY



6. NUCLEAR ENERGY



7. RADIOACTIVITY



Radioactive nucleus, Fig. 7, spontaneously emits particles and energy as it decays to form nuclei of a lighter atom. Most common form of uranium, nature's heaviest atom, is Uranium 238, Fig. 8. This form is not directly useful for energy release, but is important as the raw material for a new synthetic power source, plutonium.

An element may have several isotopes — alternate kinds with the same number of protons but slightly different

8. NATURE'S HEAVIEST ATOM

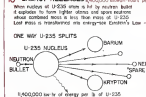


9. ISOTOPES

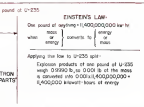


numbers of neutrons. Uranium 238 is the isotope in which protons and neutrons total 238 (no atom weight is 238). It is 99.3% of the total weight of pure, natural uranium. The stuff needed for direct atomic-energy release is Uranium 235, only 0.7% of the total weight and very difficult to separate from 238. To put it another way, every pound of empty-giving U-235 comes mixed with a dead load of 144 pounds of relatively inert U-238.

10. ENERGY RELEASED



Slow neutron bullet splits Uranium 235 nuclear target, producing two lighter atoms (Fig. 10 shows one possibility) and several free neutrons ready to split other U-235 atoms. The following pages show how the original neutron may be

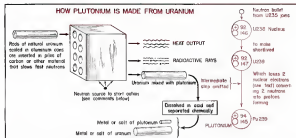


produced and directed and how a chain of self-propagating atomic explosions may sweep through a block of U-235 like a forest fire to release heat energy equivalent to 11,400,000 kilowatt-hours per pound.

CONTINUED ON NEXT PAGE

CREATING and ISOLATING

Man-Made Plutonium—U-235 Substitute



We now have two kinds of atoms suitable for energy supply, Uranium 235 and the new man-made element No. 94, plutonium. Uranium, No. 92, has the longest time of any natural element. The Manhattan Project's plant on the Columbia River at Hanford, Washington, is the world's greatest atom-making factory. Devoted entirely to the mass production of plutonium atoms, it uses U-238 as the raw material and U-235 as the energy source, ultimately mined in the same proportions as in natural uranium metal.

The production units at Hanford are several large uranium "piles." Each is a very large block of graphite with holes in which are placed uranium metal cylinders, sealed in aluminum cans to protect the uranium from corrosion by the cooling water constantly pumped through the pile.

Each pile runs itself, so to speak. Not even the conventionally pictured life of sodium, beryllium and paraffin are needed as a "pilot light" to start operation. There are always enough stray neutrons, or even cosmic rays, to start a chain reaction.

But once started, the design, size and control of the unit must be such that the chain reaction will continue at an even rate—neither die down nor overshoot into an explosion.

To see this picture in atomic terms, consider the fraction of a second in which one million U-235 nuclei are split, producing two million lighter atoms (say, one million of barium and one million of krypton) and between one and three million fast-moving neutron projectiles.

Some of these escape in free flight right through the relatively neat atomic "open spaces." Some are "captured" by the many U-238 nuclei, and others are captured by the impurities. But, on the average, of the one to three million, just one million neutrons must succeed in reaching another million U-235 atoms in the next fraction of a second. Thus, with reproduction rate exactly matched, life goes on in the atomic energy pile.

The carbon, one of several possible "moderators," serves to slow down the neutrons without capturing energy. The chance of a fast, straight-moving neutron hitting a "free nucleus" is very small, whereas the "slow ball" neutron is likely to be snared in by the nucleus instead if it would otherwise be a waste time.

From the practical angle, maintaining a chain reaction requires careful design and good controls. The pile must be slightly larger than actually necessary for a chain reaction (that

means scores of tons of material). Controls must be sensitive and dependable. They slow the pile down to the following point by sliding in reflectors, such as strips of cadmium.

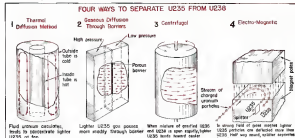
To already noted elsewhere, the energy released is about 11,000,000 kilowatt-hours for each pound of U-235 split. This energy appears first in the high speed of the pieces thrown off by the atomic split, then is converted to sensible heat as collisions slow down these projectiles. The energy is finally removed from the pile in the form of hot air, steam, hot water or other heated fluid in commercial quantity and thermal condition.

Such piles, operated with natural uranium, or with uranium enriched in U-235, would seem to be the primary means by which atomic energy will serve (if ever) as a commercial source of heat and power. Plutonium would be a byproduct, but might under certain conditions add to the energy yield of the pile without the need to separate it from the uranium.

The use of natural uranium in the Hanford pile sounds extremely attractive as a heat source, but has certain economic disabilities. Only a small part of the U-235 is used up before the pile must be shut down to remove the plutonium.

THE HIGH-POWER ATOMS

Isolating U-235—a Gigantic Task



Many of the uranium ores, including some samples of pitchblende and carnotite, will yield from 1 to 16% metallic uranium. Chemical separation of the metallic "natural" uranium is simple. Whatever the source, natural uranium contains the three isotopes in the constant proportions of 99.8% U-238 and 0.7% U-235, with traces of U-234.

Separating the U-235 from U-238, an operation essential for explosive uses of U-235, and probably important for future commercial chain-pile uses, has been most difficult. Chemical separation was impossible because U-235 and U-238 are chemically the same.

The only possibility was a separation

by physical differences, primarily a one percent difference in weight. The porous barrier and centrifugal methods pictured above required vaporizing a salt of uranium. All the methods shown have been used or tried on the Manhattan Project. All require many steps to achieve a substantial concentration of Uranium 235.

Dollarwise Thoughts on Atomic Energy

Costs mean little in war, but prices mean time of U-235 and plutonium must pass the dollar test in competition with coal, fuel oil, natural gas, gasoline, and electricity.

On the basis of energy costs only, "all other things being equal," the table on the last page of this section shows at what price per pound U-235 would give the same energy cost as conventional energy sources selling at the indicated prices. For such comparisons it is convenient to remember that one pound of U-235 is equal (on equivalent) to about 11,000,000 kilowatt-hours, also to 1500 tons of coal, or 200,000 gallons of gasoline.

Fuel engineers understand the limitations of such oversimplified comparisons. Others should be warned that "all other things" are never equal.

With this thought in mind, reconsider the uranium piles operated at Hanford to produce plutonium. These use U-235 as the cheapest fuel, say about \$1400 per lb., assuming purified raw metal uranium at \$40 per lb. (140 lb. of uranium contains one pound of U-235.)

If this were the whole story, coal would have to sell for a dollar a ton to break even with U-235 as a water heater. However, the pile using natural uranium must be financed to hold its own in a chain reaction. More important, the accumulating fission products—"poison" the reaction after only a small part of the U-235 has been used up. Then the uranium cylinders must be removed for plutonium recovery. Finally, it has not yet been found possible to separate the nonradioactive

pile at high enough temperatures for practical power production.

If we go to the other extreme and build a small pile, using concentrated U-235, we shall run into massive material costs, perhaps several times the \$32,000 per lb. set down in the table as the equivalent of 20-cent gasoline.

Something between the two extremes is likely to prove the most economical—perhaps a pile operating on a U-235 concentration between 1 and 10%.

The engineer of the "atomic power age" must know the price of Uranium 235 at various concentrations and the characteristics of piles related to them. No such information is yet available. He must also watch the danger from radioactivity, the requirements for radiation shields, explosive hazards, etc.

CONTINUED ON NEXT PAGE

WHAT TO EXPECT

FROM ATOMIC ENERGY

Before discussion of possible and probable future applications of atomic energy to the arts of peace, the atomic bomb should have consideration. We may assume that these bombs contained from two to 200 lb. of either U-235 or plutonium, or both. No more precise information is available.

Details of the bomb design have been completely suppressed, but the following basic considerations are stated or implied in the Smyth Report:

The explosive is a bomb must be highly concentrated U-235 or plutonium. Since slow neutrons could not produce a satisfactory explosion, the neutron moderator or moderator, is minimized. This, in turn, requires a U-235 mass so large that the escape of neutrons without hitting nuclei will not be excessive. For every 1000 atoms hit, the neutron produced must split more than 1000 new atoms, so that the reaction will proceed rapidly in an expanding chain, as sketched below.

There can be little leeway in the size of the explosive charge. For a given shape there is a certain "critical" weight of material. If this is exceeded the bomb explodes instantly. If the weight of charge is less than the critical, it cannot be made to explode.

Therefore, the critical mass must be attained at the moment of explosion.

The Smyth Report suggests that this can be accomplished by breaking down the charge into two or more well-separated parts, each having less than the

CLAIMS LIKE THESE ARE NOT JUSTIFIED

1. Pretty soon no more coal will be mined except as a raw material for chemical manufacture.

2. In a few years a tiny bit of uranium, built in at the factory, will drive your car for life through an engine no bigger than your fist.

3. All the big central stations will soon be running on atomic power.

4. Cheap atomic energy will enormously reduce the price of power.

critical mass. At the appointed moment these could be brought together within the bomb to create a super-critical mass, which would then explode automatically.

Peace-time Applications

Except possibly for superheating operations, uncontrolled explosive reactions cannot be presumed in the peacetime use of atomic energy. This means that the quantity of U-235 assembled in any one spot must always be kept well below the critical weight to avoid spontaneous explosion.

Depending on the particular application, the least desirable concentration of U-235 may range anywhere from the 0.7% in normal uranium up to 100%, with the probability that

many industrial applications will find the greatest economy in concentrations between 1% and 15%.

This matter of the degree of concentration of U-235 has received little public attention, yet nothing could be of greater practical importance. To make this point clear, consider the two extremes, 0.7% of U-235 and 100% of U-235, respectively.

The Hanford pile, using normal uranium (0.7% U-235) with carbon moderator, must be very large to work at all. It is inefficient in the sense that it must be shut down after a small part of the U-235 has been consumed. It cannot operate at high temperatures.

The great advantage as a heat producer is the fact that its U-235 is bought at the lowest possible price. If

...BUT REMEMBER THESE FACTS

1. The large-scale, controlled release of heat energy from U-235 has been fully demonstrated.

2. Beyond question, this energy could be applied directly for heating water and air, and making steam.

3. Such heat, in turn, could be applied directly, or converted into mechanical power or electricity by conventional steam turbines and gas turbines.

4. If and when U-235 in concentrations up to 10% costs less than \$25,000 per lb., it may find applications, but will compete, at first, with premium fuels rather than coal.

shown for the gas turbine would, of course, have to operate at temperatures up to 1200 F. These seem to be no insurmountable obstacles. The pile itself could not be built inside the compressed-air receiver, discharging its heat directly to the compressed air.

With rather high concentration of U-235, this arrangement might be suitable for large airplane drive if excessive weight of radiation shield could be avoided.

Also, presumably, rockets and planes of the "boom-bird" type might be powered by atomic heat delivered to the air of the jet steadily, not in pulses. The sketches stress direct applica-

pared normal uranium with far, say, \$10.00 per lb., the price of 140 lb. (maintaining one lb. of U-235) will be only \$1400. This would be a very favorable price if the pile could operate efficiently with the 0.7% U-235.

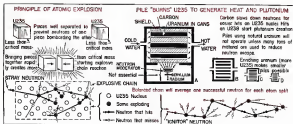
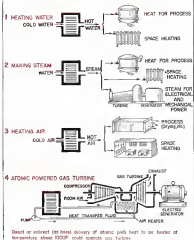
Concentrating the U-235 to 100% would permit a much more compact and convenient pile—perhaps little more than small pieces of U-235, encased in aluminum to ward off corrosion, and immersed in a tank of water; this should convert the water into steam at a regulated rate.

In large part, the control would be inherent. The water as a moderator would keep the chain going, but if the reaction got too violent, the resulting higher superheating of the steam would decrease the moderator effect and thereby hold the reaction in check. Yet even if all this came true the cost of concentrated U-235 in the new future will be many times \$10,000 per lb.

Raising up the concentration only a few percent above that in natural uranium may prove to be the way to get reasonable pile size and good efficiency without incurring exorbitant concentration costs.

Where atomic energy is applied, the starting point is heat, picked up by water, air, or a special heat-transfer fluid. Intermediate heat transfer fluids may be essential in certain applications (space heating and service water, for example) where people must be protected from injury by radioactivity. The intermediate heat-transfer fluid

HOW ATOMIC ENERGY COULD BE APPLIED



THESE THINGS MIGHT RESTRICT USE OF ATOMIC ENERGY

1. Inefficiencies of large piles using normal U-235 concentration
2. High cost of concentrated U-235 for smaller, more effective piles
3. Danger from radioactivity
4. Weight and cost of shielding against radiation
5. Explosion hazard
6. Possible short supply of uranium
7. Governmental restrictions on atomic-energy materials

Important and power applications of atomic energy may well include the ultrahigh-temperature processing and fabrication of materials—also, modern "alchemy": building and rebuilding atoms to create new elements and to produce odd elements at lower costs.

Radioactivity obtained directly or indirectly from artificial atom-splitting should find many important medical and industrial applications.

Turning back to ordinary power applications, we must avoid the temptation to constrain the economic importance of lower-cost power fuel. Fuel cost is only about 17% of the gross receipts of the electric utilities. Here's another way to put it: If, after allowing for transmission losses, one kilowatt-hour delivered to the consumer from modern plants represents a cost averaging of 1.5 ¢, and if the coal costs \$6.00 per ton, conversion of the coal bill could not mean more than 5% of a cost per kilowatt-hour. And

atomic fuel will certainly not be free. Performance of the atomic bomb is a testament to the scientists who unlocked the secrets of the atom and suggested the basic technique of making plutonium and concentrating U-235.

From there on, the job was at least 80% engineering. The various big pieces of the Manhattan Project were notsemblages of pipes, tanks, bellows, valves, instruments and controls, installed and operated by engineers, largely designed by engineers. From now on, the speed with which atomic power becomes practical will depend on the effectiveness of the engineer-scientist team.

It is possible, of course, that national controls may completely upset the entire technical and economic picture of this discussion. For reasons of national security the government may decide to control or restrict atomic-power materials, plants and operators in ways not yet determined.

U-235 COULD COMPETE AT THESE PRICES other things being equal

Common fuel	Assumed prices	Comparable prices for Uranium 235, dollars per pound (current thousands)
COAL (13,000 B.t.u.)	\$5 per ton \$12 per ton \$15 per ton	\$9,000 \$18,000 \$23,000
FUEL OIL (150,000 B.t.u., gal.)	2¢ per gal. 4¢ per gal. 8¢ per gal.	\$5,000 \$10,000 \$20,000
CITY GAS (500 B.t.u.)	50¢ per 1000 cu. ft. \$1 per 1000 cu. ft.	\$39,000 \$78,000
NATURAL GAS (1000 B.t.u.)	25¢ per 1000 cu. ft. 50¢ per 1000 cu. ft. \$1 per 1000 cu. ft.	\$10,000 \$20,000 \$40,000
GASOLINE (130,000 B.t.u., gal.)	10¢ per gal. 20¢ per gal. 30¢ per gal.	\$26,000 \$52,000 \$78,000

Note that "other things" are never equal. U-235 is an unusual element in that it is by far the cheapest, but involves use of immensely large and inefficient "piles." The unit cost of the U-235 in enriched mixtures increases with the degree of enrichment. Overall cost comparisons can be made only for a specified concentration of U-235 and for apparatus suitable for that particular concentration. Possible explosion danger and need to protect personnel against radiation are other important considerations.

BUT

there's hot air, steam and hot water to process and space heating. This emphasis is justified by the often overlooked fact that such applications of heat have many times the total energy value of all the electricity generated in the United States for all purposes.

There has been much popular speculation regarding the type of engines required for atomic-power generation. The answer is simple. Present engines, steam turbines and gas turbines can be used with little or no change. This, of course, does not rule out the possible discovery of specialized engines for atomic power, or even direct production of electricity from atomic energy.

In the long run the implications of atomic power are staggering for both war and peace. However, popular writers on the subject have unfortunately created unreasonable hopes in the minds of readers—for example, the expectation that in two or three years the Detroit builders will market cars with built-in "lifetime" stages of U-235 and "first-class" engines.

Yet it seems fairly safe to predict that atomic energy will find some concrete applications within the next five or ten years, first, probably, as a petroleum fuel life extension gasoline, with a few prices for specialized applications where low weight or some other characteristic is important.

As the cost of concentrating U-235 is reduced and application efficiencies improved, atomic energy may compete with cheaper fuels, perhaps ultimately with coal.

PRODUCTION

Reversible Thrust Propellers Gain Commercial Consideration

Airline engineers, on basis of favorable military experiences, begin study of aerodynamic braking for passenger carriers; CWP prop division announces first production installation of new unit on four-engine plane.

By BLAINE STURBLEFIELD

As a result of recent favorable military experience with reversible thrust propellers, some airline engineers are considering the desirability of aerodynamic braking for commercial airplanes.

Curtis-Wright Propeller Division has announced the first production installation of combined multi-engine synchronization and reverse thrust propellers on the B-32 four-engine Consolidated bomber. The Curtiss synchronizer, actuated by an independent master unit, automatically adjusts the blade angles, delicately varying propeller loads and keeping them all synchronized in varying flight conditions.

▲ Aeronautics.—The company also disclosed that several Boeing B-29 Superfortresses including those that dropped atomic bombs on Japan, were equipped with reversible propellers, providing an extra margin of safety in case of a landing with the bombs still aboard.

Reverse thrust equipment has been supplied by Curtis-Wright for improved maneuverability of flying boats, in water, since 1929. Application to land planes was brought about by recent marked increases in airplane weight and resulting long landing runs.

In addition to installations on the B-32 and B-29, the B-14A, Consolidated PB4Y Corsair, Martin Mars, and the Martin PRM-1 Mustang are engineered for aerodynamic braking by reverse thrust. Reversible propellers are in operation experimentally on various other airplanes.

▲ Improved Rudder.—Although Curtis-Wright, with its electric propellers, appears to be the only company offering the reverse thrust feature at this time, it is known that other manufacturers, including Hamilton Standard of

United Aircraft, have long studied its practicability. Unofficial opinion is that hydro-matic pitch control, the principle used by Hamilton Standard, can be extended to include reverse, with changes in the oil transfer rings, and others.

Curtis-Wright estimates the weight of additional control for reversibility at about one to two percent of each propeller's weight where two engines are concerned. For four propellers to reverse simultaneously, additional weight is about 1.5 to three percent for each propeller's weight.

▲ Cost Benefit.—The added weight is not entirely in the controls; there is no change in the propeller. Cost of the reverse control is estimated at about one percent of the cost of the entire propeller unit.



B-32 INFLUENCE:

Not until successful flight tests had been made did Consolidated Vultee Aircraft Corp. and the Army abandon the use on the B-32 bomber design of the turn rudders which had become a trademark of Corsair. Engineers had the war continued the B-32 would have gone into mass production with a narrow angle rudder and sensibly large dorsal fins and vertical stabilizer.

One series of tests showed that four propellers reversed, with the normal use of brakes, give a landing run of 51 percent to 61 percent of that obtained with brakes alone. Other four-engine tests show a landing run of only 44 percent of that with brakes alone. Reduction of ground run was as much as 80 percent in tests on two-engine medium bombers.

It is estimated that negative thrust will permit the reduction of brake weight by about 50 percent. The brakes on a 100,000-pound airplane, for instance, weigh about 800 pounds, which would be cut to about 400.

Other advantages of reverse thrust:

▲ It is fully effective regardless of ice, snow or slippery pavement. So far, the cushion effect of its application would seem to be more agreeable to passengers than the effect of braking; absence of propeller slip streams on wings during landing reduces lift and eliminates "bouncing"; greater deceleration with negative thrust enables the pilot to make his approach at a higher, safer speed.

Operators of lighter-than-air craft like reverse thrust for hovering without turning into the wind.

Engineers said, in reply to inquiry, that they see no reason why reverse pitch cannot be used in connection with gas turbine powerplants. They expressed the opinion that reverse thrust in the case of jet propulsion would present a serious problem. A spokesman for



'STRATOVISION' TRANSMITTER:

Curious drawing of the Martin-designed plane announced as the key to long-range television relay (Associated Press, Aug. 13). Under plans formulated by Martin and the Westinghouse Electric Corp., 14 of these aircraft would be used at various locations across the country. Powered by two 4,650-hp. engines, the planes would cruise at about 250-mph. Only indication as to size is statement they would be "about as large as the B-29, but weighing only one-third as much." Planes would be manned by crew of three and as radio transmitters.

one large propeller manufacturer and the reversible feature is definitely desirable for lightplanes, but will not be applied on a large scale until it can be done with little or no increase in weight, cost, and complexity, and with very high reliability.

Ryan Retains Workers Despite Large Cutbacks

Despite a cutback of approximately 45 percent in its Navy orders, Ryan Aeronautical Co. expects to keep employment of production workers at near the wartime level. This is made possible by an extension of the contract delivery time and the latter part of 1947.

Under the original terms, deliveries were to be sharply increased for the balance of this year. Now, production will be pegged at the July rate. Also, because a high employment level will be the return to the parent plant of assembly work formerly done by subcontractors.

Other Workers—While those two factors will cut direct production workers, Ryan announces that substantial reductions will have to be made in office staff, tooling, production control and other employees not engaged directly in turning out Ryan fighters.

17's, 26 North American P-51 Mustangs, five British heavy bombers and 422 Superfortresses.

At peak employment in February of this year, the center employed about 3,200 workers. The center did nearly 1,200 different kinds of modification, ranging from simple wiring changes to major engineering projects.

The big Navy modification center at Litchfield Park, Ariz., operated by Goodyear Aircraft, is scheduled to finish within 60 days. It has been working on PB4V Corsair Privateers. Consolidated Vultee is expected to deliver its last Privateer to Litchfield Park soon after mid-November. Other modification centers are in the process of being closed.

Australia Cuts Aircraft Output

According to John Storey, director of the Research Division of the Australian Department of Aircraft Production, the output of Bombers, Fighters, and Transporters in that country will be curtailed. It is considered certain that Australia will continue to produce jet-propelled trainers and fighters and light combat bombers and transporters. The production program, as now seen, includes four-engine Lincoln bombers for the air force, and Tudor passenger planes.

The peacetime aircraft industry of Australia will employ about 10,000 workers, a reduction of some 30,000 from the present total, but no time has been set for the discharge of the surplus workers.

TBY 'Clearance'

Termination of the TBY-2 Stenovert contract at Cassidonia-Vulcan Aircraft Co., Pa., plant is proceeding, with new stocks totaling five carloads of material, most of which was aluminum, stored from storage areas.

Work has started on clearing the maintenance, repair and operating area also. Virtually all possible direct sales of surplus materials to other contractors have been canceled. What materials remain are being reported for disposition on Office of Contract Settlement forms OCS inventories, when prepared, will cover a wide variety of materials and components, including propellers, engines and turbines.

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COMMENTARY

German Turbo-Jet Powerplant Revealed As Compact, Efficient

Bayerische Motoren Werke model 003, scheduled when Reich fell, for full production this fall, said to present excellent possibilities for further development; approached 2 to 1 thrust-weight ratio goal.

As Allied technical experts located their various "targets" where valuable information was expected, it soon became evident that there was such a wealth of material that some specialization between countries and services was essential in the interests of efficiency and speed in obtaining the necessary data, but with the final results of the total team eventually available to all.

In the field of gas turbines for jet propulsion (turbo-jet), it was decided that the British should concentrate first on the Junkers J84, which was the unit furthest along in production and in operational use. The U. S. Army Air Forces were given the BMW 003, and the U. S. Navy the Heinkel-Hirth OH 112B. The Bayerische Motoren Werke, with their facilities in the Munich area, began experimental work on turbo-jet engines in 1936, and by 1939 the BMW 003 project was definitely decided upon.

The first had its first test-stand runs in the summer of 1940, and something over two years later was test-run in the two-jet Heinkel 108 fighter. About the middle of 1944 it was flown in the improved model, the HE-280.

Neither of these aircraft went into operational use, but apparently this was not the fault of the turbo-jet, as the 003 has turned out to be an efficient, compact unit of simple design, with excellent possibilities of further development.

Heinkel Power—It was the powerplant of the early model of the lightweight jet fighter, the Heinkel 108. The 003 was in limited production in the spring of 1940 and was scheduled to go into

quantity production (possibly 1,000 per month) by this fall.

The first sub-type was the 003A, and the records indicate that this unit was scheduled to go into certain versions of the Arado 234, while Junkers J84's were installed in others.

The 003A had a sea-level static thrust of 3,700-lbs., at 500-mph.-sea level, 1,450-lbs., and at 36,000-ft. (500-mph.), 305-lbs or 700-hp. (This is based on the fact that one

Rocket vs. Jet

When supersonic flight is achieved, competition will be between the rocket engine and the turbo-jet engine. In the selection of power source, P. A. Calman, chief aerodynamics engineer of the Army Aircraft Corp., told engineers attending the Los Angeles summer tech conference of the Society of Automotive Engineers.

Col. Homer A. Bushley, Jr., jet propulsion authority and commanding officer of the Army's 4th Jet Fighter Group, who reviewed jet and rocket theory and performance as a guest speaker at the conference, opened way for the prediction when he cited the negligible sea-level efficiency of the standard 500-mph.

Speed Efficiency—The audience questioning as to the reasons for continued study research throughout the country. Colonel Bushley and Calman, chairman of the session, explained that at supersonic speeds the efficiency of the standard will increase notably and bring it into range for use as a prime mover.

pound of thrust is equal to one horsepower at 275-mph.; at 500-mph. the horsepower figure is therefore one-third greater than that shown for the pounds of thrust.

Planned Improvements—Other versions of the 003 develop almost 3,000-lbs of static thrust power, with a projected model in the 2,400-lb bracket. With a weight of 1,250/1,340-lbs this would be approaching the 3-lbs thrust/lb. of weight ratio, a definite goal for this class of engine, and in this respect far ahead of the yardstick for the corresponding engine, which is one pound/horsepower.

(As there have been statements in the press indicating that American technical developments in jet propulsion lag behind those of the Germans, it may be pointed out that one American design, the GE unit in the P-50, a larger and improved development of the original Whittle engine, has a ratio of pounds of thrust to pounds of weight of better than 2 to 1.)

The 003A consists of a 4-stage axial compressor with a single-stage turbine; the axial-flow type of compressor permits a compact-shaped unit.

Weight, 1,340-lbs.; length, 11-0, 10-4; width, 2-0, 4-4; height, 2-4, 10-4.

Fuel used is J2 (diesel oil) or 87 octane gasoline. Starting on the ground is provided by an electrically-started motor which cuts out at 2,800-rpm. Maximum rpm. of the unit itself is 9,000.

The 003C sub-type had a Brown Boveri type compressor, possibly with six stages. Other improvements led to an integrated thrust for this version of 1,960-lbs. static at sea level. This unit was only partly developed.

A projected development embodying further improvements was the BMW 003D which was designed to deliver more than 2,400-lbs. of static thrust at sea level. This was in the drawing board stage.

Other BMW projects included two much larger aircraft gas turbines, the 004 turbo-jet and the 005 gas turbine for propeller drive.

Delta Götter—The project officer assigned to secure this material at BMW was Major Rudolph C. Shalle, who related some of his experience in obtaining this data at a recent AAF-Lockheed-General Electric press conference in New York.

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Pan Am Stock Acquisitions Highlight July SEC Report

Officers and directors add substantial amounts to personal portfolios; nine continental airlines note transactions; Aero Air Associates, Ryan Inc. heaviest security trading among manufacturing group.

Securities and Exchange Commission summary of July security transactions and holdings disclosed the acquisition of substantial amounts of Pan American Airways Corp. \$2.50 per value capital stock by officers and directors through the exercise of warrants.

John T. Trippe, president, acquired 10,813 shares, increasing his holdings to 50,923 capital shares. In addition, he reported holdings of 58,000 shares through trusts and another 800 shares as a "claim against borrower of shares."

Other buyers—S. M. Fairchild, director, acquired 3,800 shares and sold 2,600 shares, increasing his holdings 1,200 shares to 20,000. Harold M. Buxby, vice-president, held 3,000 shares at the close of July after acquiring 1,000 shares. A similar number of shares were purchased by Thomas F. Taylor, director, who likewise held 3,000 shares at the end of July.

Other increases in holdings through the exercise of warrants and the number of shares owned at the close of the month were: John C. Cooper, vice-president, 842 shares to 2,232; George L. Rife, vice-president, 733 shares to 2,100; H. Preston Morris, director, 666 shares to 1,500; J. Clavon Harp, vice-president and treasurer, 503 shares to 1,345; Herbert Lehman, 546 shares to 1,500; Howard B. Dean, vice-president, 500 shares to 1,440; S. Susan Coll, director, 135 shares to 465; Charles Francis Adams, director, 184 shares to 330; Prescott B. Bush, director, 30 shares to 150.

PCA—Sale of 700 shares of Pennsylvania—Central Airlines Corp. common stock was reported by Laurence Iversen, director, who had 7,183 shares in his portfolio at the close of July. Iversen filed a report for June, which showed the

sale of 4,888 shares of the company's common stock.

UAL—Gardner Cowles, Jr., director of United Air Lines, Inc., reported the purchase of 500 shares of the common stock by Regier & Tribune Co., bringing the shares held to 1,200 shares.

TWA—Otis F. Bryan, vice-president of Transcontinental & Western Air, Inc., purchased 169 shares of the company's common stock in June, bringing his holdings to 313 shares.

WAL—L. H. Duerfloth, executive vice-president of Western Air Lines, purchased 284 shares of the common stock, increasing his holdings to 11,140 shares, while Thomas Wolfe, vice-president, sold 500 shares, reducing his holdings to 7,880 shares.

NCA—A June report filed by Eugene L. Vidal, director of Northeast Airlines, Inc., showed the sale of 500 shares of the common stock, leaving him 30,500 shares at the close of that month.

NAL—E. P. Tiedelroth, director of National Airlines, Inc., bought 50 shares of the company's common stock, which represented his entire holdings in the company at the end of July.

EAL—A report for May filed by Paul H. Bestman, vice-president of Eastern Air Lines, Inc., disclosed the purchase of 833 shares, increasing his ownership to 4,333 shares. John H. Phillips, a director, reported the sale of 300 shares of Eastern's common stock through a trust, leaving the trust with 5,000 shares. Another trust held 900 shares at the close of July, while 625 shares were held through a third trust.

BNF—Charles E. Beaud, vice-president of Braniff Airways, Inc., increased his holdings of the company's common stock to 1,235 shares through the purchase of 100 shares.

CAL—William M. Boyle, Jr. and Carl O. Hoffman, two new directors of Colonial Airlines, Inc., filed reports showing their holdings of the company's common stock. Boyle reported the ownership of 3,000 shares, while Hoffman holds 1,800 shares.

Grossman—Among the manufacturing group, Leroy R. Grossman, president and principal stockholder of Grossman Aircraft Engineering Corp., sold 400 shares of the common stock, leaving him an ownership of 50,760 shares. Edmund W. Pear, treasurer, reduced his holdings to 11,800 shares through the sale of 1,000 shares.

Ryan—T. Claude Ryan, president and principal stockholder of Ryan Aeronautical Co., reported the sale of 1,200 shares of the common stock in June, reducing his holdings to 30,341 shares. Ryan reported that his wife held 900 shares.

Beech—Thomas D. Neelands, Jr., director of Beech Aircraft Corp., bought 200 shares of the company's common stock during July, giving him 301 shares in his portfolio.

Other transactions included: Sale of 100 shares of North American Aviation, Inc., capital stock by Robert A. Lambeth, vice-president and treasurer, leaving him 148 shares; sale of 50 shares of Glenn L. Martin Co. common stock by William K. Ebel, vice-president, leaving his holdings at 546 shares.

Purchase of 1,000 shares of Aviation Corp. capital stock in July by Arthur W. Herrington, director, increasing his holdings to 1,500 shares; purchase of 100 shares of Consolidated Vultee Aircraft Corp. \$1.25 cumulative preferred stock by Fred Dew Becker, director, representing his entire holdings at the close of July.

Gilbert Colgate, director and principal stockholder of Air Associates, Inc., reported the sale of 3,000 shares of his company's common stock in June. At the close of that month his holdings consisted of 12,540 shares.

Brenitt Airways, Inc., was issued the certificate of the "Highest Merit Award" by the magazine Financial World, for distinguished achievement in reporting for its annual 1944 financial statement to stockholders. A survey of 1,250 financial reports was made by the magazine.

A condenser study of airplane crash fire fighting has been published by the National Fire Fighting Association, International, of Boston.

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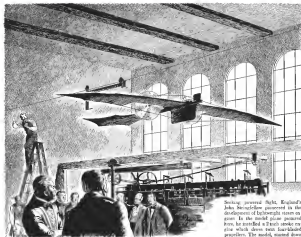
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Seeking powered flight, English's John Stringfellow pioneered the development of lightweight steam air guns. In the model plane shown here, he utilized a French smoke engine which drove twin four-bladed propellers. The model, mounted down an inclined wire, actually lifted and was able to sustain flight for 120 feet.

John Stringfellow taught engine power to fly

Nine pound model built in 1848 was first to lick the LIFT-DRAG ratio

Lift divided by Drag equals "X." As we increase the lift with a curved or air-pumping around the wing—or as we reduce the Drag caused by the plane's passage through the air—we get a better "X." We get an airplane that flies lighter or faster or carries greater loads on less fuel.

Compare, for example, the improvement that has come in lift surfaces. The fragile biplane wing of the

past had just enough lift to leave the ground. The modern Northrop-designed 66 foot wing of the Black Widow F-6H raises 30,000 pounds of plane and bombs into the subsonic sphere. And even the Northrop wing is only a beginning.

Major developments to cut down Drag also have come from Northrop... including the first multi-filletter internally-braced wing in 1939, the

streamlined fuselage in 1936, innovations in wing and fuselage shapes as in the 1934 Northrop Gamma and lighter, smoother construction through bellair, smoother construction through bellair, smoother construction through

improving the Lift/ Drag ratio is a continuing project at Northrop. Northrop is set to better the ratio, not only with new, improved types of propellers, but also with new types of planes like the Flying Wing, which eliminates nearly every Drag element.

Northrop Aircraft, Inc., Northrop Field, Hawthorne, California.

Creators of the **Black Widow**

P-61 Night Fighter and the **Flying Wing**

NORTHROP



TRANSPORT

C-54E's Allocated to Airlines As New Equipment Flow Begins

Surplus Property Board announces 100 to 200 four-engine planes will reach carriers for commercial operation within ten weeks; first 20 passenger versions slated for three lines awarded North Atlantic routes.

By MERLIN MICKEL

Allocation of 30 C-54E's to the first of 100 to 200 four-engine C-54's to go to the airlines in the next eight to ten weeks for commercial operation was announced by the Surplus Property Board over the weekend.

The first 20, as had been predicted, will go to the three U.S. flag lines recently certificated to fly North Atlantic routes. Eight will go to Pan American Airways and six each to American Airlines System and Transcontinental & Western Air. The planes are of the latest passenger-equipped type.

More Coming.—Only 91 C-54E's were built, and of this number about 15 are expected to be declared surplus for domestic and foreign airline allocation in the near future. The remainder of the 100 to 200 due in the next two and a half months will include a large proportion of C-54B's, cargo equipped but readily adaptable to passenger use. All in the group were built originally for the Army.

Although the first allocation is going to U.S. lines, SPB says additional equally good four-engine equipment will be made available to foreign airlines soon.

The outlook is good for additional four-engine equipment, because the group of up to 200 by the end of the year, General Harold I. George, commanding general of the Air Transport Command, is known to have told the airlines that he expects to be able to obtain release of a total of approximately 600 C-54 cargo planes to the airlines beginning this month and continuing through next June. Dedicated surplus by the War Department, they would go to the carriers on a lease basis.

Two-Engine Picture.—Prospects also are favorable for early release

to the airlines of additional two-engine equipment of the DC-3 type. Seventy-odd C-83's are to be declared surplus within the next few months, and 800 C-89's are due this month or October. The airlines soon will be able to obtain all the C-47's they desire. Since this is a cargo version of the DC-3 not readily converted to airline passenger needs, the initial demand is not expected to be large. A few more Lockheed Lodons also are to become available before the end of the year.

These developments will provide the start towards a much-needed clarification of the surplus picture, hitherto so confused that the airlines, not knowing what former military planes would be available, have been at a loss for accurate determination of likely needs for either surplus or new equipment.

Estimates of the cost of converting the C-54 military transport to airline use vary widely from a mid-range figure of \$150,000, and there are other factors that will have a bearing on the demand for surplus four-engine units. Base price, lease cost, time required to convert, availability of conversion parts, and the outlook for new equipment off the production line are among these.

DC-4 Price.—Douglas Aircraft Co. has been giving a price on new DC-4, commercial version of the C-54, of about \$400,000. Finding a defense in air carrier circles that Douglas will pay the cost of initial DC-4 transports at \$325,000 for the 28-52 passenger pressurized deluxe model and \$250,000 for the 44-passenger high-density version. The possibility is strong that the Santa Monica company will not manufacture a DC-4 Army release is the airlines of C-54 transports, for step-up new pending DC-4 deliveries, will be the determining factor United Air Lines already has withdrawn early orders for the DC-4.

Douglas also has been sounding out the airlines on the C-119, two-engine military passenger version of the DC-3, but here again need could not be determined pending knowledge of how much surplus equipment would be available.

Not knowing how many might be required to produce for the airlines at its Oklahoma City plant, Douglas has been unable to give a firm price, though estimates run around \$110,000 to \$120,000.

Vacate Fleet.—The Oklahoma City plant, on which the overhead



"THREE-CENT-A-MILE" TRANSPORT:

Cut-away of Glenn L. Martin Co.'s new Model 207, 34-passenger, high-speed luxury airliner under a claimed operating cost so low it makes possible a passenger fare of three cents a mile. Conversion is emphasized in the design, with luggage racks opposite the entrance door and above the seats cutting down weight and drag. A set of the 200 elements forward and aft cargo compartments, and use the utility space for luggage, making possible 42 seats.



ORIGINAL CLIPPER SOLD:

Pen American's original Clipper, a four-engine S-49 flying boat, has been sold to Joseph Beck of Miami. The ship, biggest 12,535 hours, mostly between Miami and Havana, and was used for training aerial navigators before it was retired a year ago. Whether it will be repaired or scrapped, Pen American says, has not been decided. Picture shows the S-49 during its career with PAA.

in about \$2,000,000 a year, also must be wanted by February, Douglas officials say. The Army C-117 contract was cut back immediately after the Japanese surrender, until then the plan was to have Douglas complete an order of 131 of these planes, of which 71 would be sold to the airlines at the level of cost to the Army.

Route Acquisition Legality Pondered

Aeroma Airways, Inc., of Phoenix, is seeking Civil Aeronautics Board approval for acquisition of Transcontinental & Western Air's certificate for A.M. 14 between Phoenix, Ariz., and Las Vegas, Nev., via Prescott and Kingman, Ariz., and Boulder City, Nev.

Their application results from an agreement, July 11, between Aeroma Airways, its officials Air-Safe Co., and TWA, providing for transfer to Aeroma of TWA's certificate in return for 5,000 shares of \$10 per common stock and preferred stock with \$100,000 par value. Air-Safe—composed of H. O. Nelson (also president of Aeroma Airways), Douglas Robinson, and James K. McElwaine—has the Bessie agency at Phoenix.

No Precedent—Whether such acquisition is legal under section 446 of the Civil Aeronautics Act is the question the Board must determine. No precedent has been set. The case is the third of its kind to come before CAB. The first, involving Arthur C. Hyde and Tri-State Aviation Corp., was dismissed for lack of prosecution.

The second, Northern Airways' proposal to acquire the certificate of Harold Gillan, was the subject of recent hearing in a consolidated proceeding in Alaska.

TWA inaugurated service on AM 38 in November 1938. Because of lack of aircraft, service was suspended in May 1942, and the route is not now being operated.

PCA Four-Engine Fund

Pennsylvania—Central Airlines will meet the cost of new four-engine planes for its present system with a \$10,000,000 issue of new securities. Fifteen-year convertible income debentures to this amount will be offered to the public through investment houses headed by White, Weld and Co. and Carl M. Loeb, Rhoades and Co.

AA Plane Bids

American Airlines' request for bids on a 30-passenger plane for which it proposed the general specifications. (Aviation News, Aug. 13), brought response from five aircraft manufacturers. Bids were opened last week, but results were not announced immediately.

Company officials had under consideration a plan to prepare in brochure form the various data received from the manufacturers, for distribution to every airplane in American's system for their reaction to which they consider the best craft.

CAB Power Questioned In Page Probe Plea

Direct appeal to the Civil Aeronautics Board for dismissal, for want of jurisdiction, of its economic investigation of Page Airways, Rochester, N. Y., is being made by the company.

From its announcement of the hearing in Washington last week, Albert F. Beitel, counsel for Page, gave notice that this action would be taken following Examiner William F. Cusick's denial of a motion to dismiss the case.

No Counsel—Beitel maintained that Page is not an air carrier within the meaning of section 1 of the Civil Aeronautics Act.

At sessions in Rochester, Public Counsel called 20 witnesses, including representatives of six Rochester war industries, which had contracts with Page for air services and several passengers on former Page flights.

Other than making available, at Public Counsel's request, certain of its officials and employees, Page furnished no witnesses of its own. **Testimony Trend**—Testimony of some of the witnesses was similar to that at the opening of the hearing (AVIATION NEWS, Aug. 27) when Page was described as a charter operator not maintaining desirable schedule.

Is the central CAB's ruling on the dismissal motion as adverse to Page, befalls will be due within 10 days from the date of decision.

Non-Airworthy Places 'Ground' Kentucky Line

The Kentucky Aeronautics Commission recently suspended, after hearing, a state certificate held by Beegmans, Airplane, previously charged with operating planes not airworthy.

Harry E. Bollock, commission secretary, said the certificate was suspended indefinitely or until the company can comply with rules and regulations of the commission and the Civil Aeronautics Administration as to airworthiness of its planes.

The company said it had ordered new equipment and had one new two-engine plane ready for service with two more expected shortly. It had been operating two routes in Kentucky, daily except Sunday, hauling both passengers and freight. Bollock said neither would be flown again until three planes are available, two to fly and one as standby.

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There'll be airports and airports all over the country, wherever you want to go. Aeroma's been planning these facilities. They've always taken the best ever since they produced the first light plane 17 years ago.



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AMERICA'S PERSONAL PLANE
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has an important message for air-minded people

Freight Consolidation Plan Seen Boosting Air Cargo Use

New York organization, working with American Airlines on Model 39 experiment, finds load factors on mixed shipments high; clothing, department store merchandise, drugs in greatest volume.

By MARTIN V. MERRITT

A new venture in the handling of air freight that some airline cargo executives believe may have a profound influence on the growth of air cargo is the freight consolidation which has been undertaken by a New York organization, in cooperation with American Airlines. This project is carried on as a part of the experimental work American is doing with Consolidated Vultee's Model 38.

In the use of a plane as large as this, with a payload of 18,500 pounds, there are as yet relatively few single customers who can furnish a one-lot shipment. American is now running a flight every Friday for one such customer. To accommodate the hundreds of potential air freight users whose total requirements at any one time are far below the 18,500

pound capacity figure, however, American has entered into an arrangement with Air Freight Consolidators, 400 Sackett Street, Brooklyn, whereby this organization takes over the entire cargo facilities of the Model 39 every Tuesday, paying American a flat rate regardless of the amount of space used.

Sidney Glansberg, president of the Brooklyn company, who has been engaged for some time in the rail and motor freight business, is enthusiastic about the possibilities of the consolidation idea. This practice has been followed for years in rail and motor freight and its application to air is merely an adaptation. Mr. Glansberg says that with the expansion this month of American's experimental period on the Model 38, a overall

study of the consolidation plan will be made to determine what revisions, if any, are needed before the work is projected to other air carriers.

Air Freight Consolidators has not established a rate scale similar to that which is known as less-carried in rail freight, but has acted as shippers' agents, charging a cost-plus fee for each shipment. While this has afforded greater protection during the experimental period for the consolidators, it is considered quite probable that a pound-mile rate will be developed should the split-load idea be accepted.

Load factor experience has been very encouraging, according to Mr. Glansberg. With a cargo capacity of 11,900 pounds available, his organization has been able to secure loads averaging 17,500 pounds. The type of cargo has varied but has been predominantly ready-to-wear clothing, department store merchandise, and drugs and chemicals.

Air Express Optimism

Air express executives are predicting their greatest year in history, in volume and revenue, on the basis of record-breaking rates in the first six months of 1945.

Air Express Division of Railway Express Agency notes increase in domestic air express shipments from \$54,973 for the first half of 1944 to 1,040,339 for the corresponding period this year, a gain of 28.6 percent. Gross revenue, meanwhile, went up 53.4 percent. Internationally the gain in shipments was 37.4 percent, from 111,403 to 151,602.



AIR FREIGHT EXPERIMENT

Indication of the cost range which may be expected of non-scheduled air cargo operations should be gained at an early date by National Airways Freight Corp., which operates cross-country service from Long Beach (Calif.), Municipal Airport. One of the company's fleet of Consolidated Vultee Model 38s is shown at the California terminal after arriving from New York with a load of household furniture. Shown in the cargo hold of one of their fleet are three of the company's six-Flying Tiger officers: Robert W. Pruzansky, president, center; Robert P. Hildner, vice-president in charge of operations, left; and Jack Carmelita, vice-president in charge of maintenance.

PICAO Unit Heads Named By Warner

Temporary chairmanship appointments prepare navigation and transport committees for meetings next month.

Temporary chairmen of the important Air Navigation and Air Transport committees of the Provisional International Civil Aviation Organization's Interim Council have been appointed by Dr. Edward Warner, president.

Named were A. R. McCann, Australian delegate, for the navigation post and Dr. F. H. Copey van Hasselt, delegate of The Netherlands, for the transport assignment.

The selections were announced shortly after adjournment of the council's first session. Full membership of the two committees will not be known for some time, as every state signatory to the Interim Agreement has the right to appoint a representative.

Office Duration—The two delegates will hold office for 30 days following first meetings of the committees, Oct. 2 and 3. Their appointments will be ratified or changed when the council convenes Oct. 15. Normally, the council itself would elect heads of the committees, but authority to make the temporary appointments was given the president to eliminate need for a special meeting before the committees were convened.

McCann's Air Navigation Committee and sub-committee will study and advise international standards for communications procedures, air navigation aids, air traffic control practices, rules of the air, licensing of personnel, airworthiness, meteorological practices, accident investigation and charts, and accident investigation.

The Air Transport Committee and its subsidiary groups will deal with operational, economic, statistical and legal aspects of international air transportation.

McCann, a veteran of the Australian Flying Corps in World War I, has played a leading role in development of civil airfields in Australia in recent years. In 1931, he made the overland survey in Australia for the Ross Smith pioneer flight from England. In 1937-38, he was in England with the British Air Ministry, organizing the Singapore-Sydney civil development and air mail route. He is at present chief inspector of

Pogue Predictions

L. Welch Pogue, Civil Aeronautics Board chairman, forecasts:

■ Cargo revenue "some day" according to that from passenger.

■ U. S. commercial airlines maintaining their good competitive position with foreign air carriers in international air service.

■ Volume of domestic service operations through increased operations on existing trunk lines.

■ "A very liberal testing" of unit operations in smaller communities.

Pogue declared, in a recent radio address, that the factor of unit operations in smaller communities is a national realization that "civil aviation will be an important part of the military aviation program. It will prove itself to be in war." He advocated support of technical advances and government programs designed to assist aviation's growth.

ground organization for the Civil Air Board.

Dr. Copey van Hasselt is director of civil aviation for the Royal Netherlands Government. He practiced law in Java until 1941, when he joined the Netherlands East Indian Air Force. He escaped the Japanese and was sent to the U. S. as personnel officer of the Dutch flying school at Jackson, Miss. He attended the Chicago International Civil Aviation Conference as adviser on civil aviation to the Netherlands Government in London.

Pickup Air Service To Expand Abroad

Plans for the expansion of All American Aviation, the country's only "pickup" airline, extend to the foreign as well as the domestic field, according to the mutual report to stockholders by Bailey R. Benley, president.

Arrangements have been completed or are being negotiated for establishment of air pickup in several countries, and the expectation is that the service will start in the next six months in Canada, Brazil and Colombia. It is in Brazil that the company has completed organization of a subsidiary development and service company, Equipamentos All American Avia-

tion, S. A. (Aviation Nova, July 1945).

■ National Plan—Domestically, the service plans straight air pickup routes and combined passenger-cargo routes. Applications have been filed for 14,441 route miles to serve 1,154 communities on 66 routes.

Operation of all this mileage, Bailey estimates, would require 138 aircraft of both single and twin-engine types. As of July, All American was operating a fleet of nine Stinson Helicopters. It had been allocated two Douglas DC-2's, but these, says Civil Aeronautics Board sources, were never received.

Although the line's total business for the fiscal year ended July 31 was \$3,000,000, compared with \$3,470,000 in the year preceding, profits were down to \$48,171 from \$124,877. Bailey says the decrease was due to an operating loss of \$73,931 in the air transport division, and a \$52,967 deferred charges write-off in connection with new surveys and new route applications.

■ Present Operations—The company serves 117 communities in six states. Authorization by the Post Office Department of additional rights under the recently scheduled routes 1,344 miles to a total of 5,333. Mail traffic was up 42.4 percent, express 13.7 percent. Main effort of the company's manufacturing division went to production of equipment and experimental projects for the military.

TWA Routes Touring N. Atlantic Route Points

A group of Transcontinental & Western Air officials left New York last week for the British Isles and Continental Europe to study prospects for North Atlantic routes recently authorized to the company by the Civil Aeronautics Board.

The delegates were headed by T. B. Wilson, chairman of TWA's board, who has charge of TWA foreign operations. With him were George Spatter, Donald E. Midgley, Harold F. Blackburn, Dallas Blomquist and T. W. Taylor.

■ Travel Talk—They were traveling to Eire by American Export Airlines, and the remainder of the way "by whatever type of conveyance is available."

Jack Taylor, TWA vice-president, went to Cairo for the same purpose some time ago.



Carriers Begin Readjustment To Non-Priority Travel Status

Belief that wartime control of service patterns may follow priority air travel out of existence on Oct. 15 also expressed; problems of shifting ticket and space procedures emerge immediately.

The airlines' long tussle with domestic air priorities will end Oct. 15 after an interim 10-day period during which, some airline and military sources believe, volume of this type of travel may dwindle of its own accord to virtually nothing.

There also is reason to expect that controls over the wartime air service pattern, whereby the Civil Aeronautics Board and the Army had final say on changes proposed by the carriers, will cease to exist when, or shortly after, priorities controls are removed.

First Step—A sharp curtailment in priorities became effective Sept. 15, with the withholding of the present four classes into one, substitution of all so-called leave type and automatic privileges usually included in "travel by air" military orders, fewer military requirements for expedited official travel, and stringent screening of both military and civilian requests. War Department estimates are that this will cut the volume of priorities from 100,000 to 15,000 or less.

About 98 percent of the priority travel has been by troops, mostly enlisted men, on leave after return or before departure to foreign theaters. For the most part the

remainder has been directed overseas and came that before VJ day was considered urgent. Privileges granted after Sept. 15, say Air Transport Command sources, will be confined, generally, to air travel directly concerned with supervision and implementation of demobilization and occupation—in effect, completion of the war effort.

Concurrent with discontinuation of domestic priorities controls, those on civilian airline services to Hawaii, and Central America and Alaska also will be dropped. The War Department explained that military services paralleling these commercial routes will accommodate urgent military traffic. Priority controls on air trans-Atlantic and trans-Pacific airline services will continue "by the present."

Like Weather—The new directive's provision of a breathing spell from Sept. 15 to Oct. 15 is in line with the airlines' desire for a gradual curtailment to permit adjustment in the changeover to full non-priority operation. There was some concern that if priorities were cut off too abruptly their replacement might be necessary. Actually, the carriers have 40 days' notice that priorities will be discontinued, since the War Department announcement was made Sept. 5. Moreover, the move has been expected.

One airline spokesman said the change back to a non-priority basis might prove as complicated as priorities had originally. Airline representatives and booking personnel is accustomed to the priority system—many have not worked under any other—and changes in methods of bookkeeping and readjustment of the delicate balance of space control will present problems.

At least one transcontinental service is considering booking non-priority passengers up to 75 percent of its space for the 30-day period after Sept. 15, but admits from which it does not know what changes in procedure will be necessary after Oct. 15.

Control Inception—Wartime ser-

vice pattern controls were initiated early in 1943 under the same executive order that permitted the inauguration of federal priorities, and were administered primarily in consideration of wartime security traffic. Originally, proposed changes in the service pattern were subject to approval by the military director of civil aviation, and later by the Air Transport Command. In March, 1945, Army relinquished to the board the duty of passing on such changes—a normal delegation since CAB recommendations in that regard generally had been accepted by the military. ATC officials say any remaining vestige of military control over the air service pattern will go out with priorities. Board sources say CAB probably will request official statements of wartime service patterns, controls through a letter to the War Department after priorities cease.

Any immediate difference in the service pattern is unlikely, however, after the board is required to pass on schedules as equipment, because of the time necessary to make changes. The way may be eased for operation of some routes hitherto not served because of the war situation, but this would require board action, since such suspensions are authorized by special exemption order. More requests may be expected for non-stop privileges, always subject to board approval, and it is certain that more cities of small size, heretofore passed over by the big airlines, will be served soon.

New Airmail Rate Accepted By Three

Three of the "Big Four" air carriers—American, Eastern, Western Air Lines, and United Air Lines—have formally expressed their willingness to accept Civil Aeronautics Board's proposed new mail pay rate of 48 cents per ton-mile (Aviation News, Aug. 20).

The fourth—Transcontinental & Western Air—has decided to do the same but will ask the board to make the rate effective, as far as TWA is concerned, on Oct. 1.

Retrospective—As proposed by CAB, the rate would be retrospective to Jan. 1, the date on which the board served its original orders to show cause why mail pay should not be reduced from the present 48 cents per ton-mile to 32 cents.

The position of American, East-

ern, and United was made known at brief hearings before Senator Charles J. McNair. The three lines work on record as having no objection to the 48-cent rate. They believe, however, that their failure to object now was not to be construed as binding in future rate proceedings.

Mark Anniversary Of Air Mail Flight

Postmaster General Robert E. Hannegan was guest of honor at a luncheon in New York Friday, commemorating the twenty-first anniversary of the first flight of trans-continental air mail, sponsored by the Wings Club and the Aviation Section, New York Board of Trade.

James P. Murray, now resident vice-president of Boeing Aircraft at Washington, D. C., who flew the Chicago-to-Salt Lake City leg on the first flight, was present.

Samuel Seckel, former Governor of Maine, now president of American Export Airlines, introduced Mr. Hannegan. Following his address, presentation of a commemorative plaque to City of New York was made by Cyril Thompson, vice-president, United Air Lines, to the Mayor marking the occasion.

Representatives of military, naval, industrial and civil life present included Mayor General Samuel E. Anderson, A.A.P., representing General H. H. Arnold, Rear Admiral Charles E. Rosen, U.S.N.; J. A. Zollner, chairman, Industry Group, War Labor Board, New Haven, vice-president, Newington-Rural, John B. Glenn,

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P-150, AVIATION NEWS

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Baby Flights

Transcontinental & Western Air soon may put a brand-new baby usually exploited source of passenger revenues by featuring one or more daily transcontinental trips as "Baby Flights."

TWA officials believe that as travel restrictions are lifted as necessarily large number of mothers with infants will turn to air travel to minimize the inconvenience of lengthy air-sea passenger journeys.

If infant travel develops as expected, TWA may offer flights specially equipped for infant care and serving meals. Addresses for such flights would be selected and trained for that type of service.

President, New York Board of Trade; Hon. John McMane, commissioner, Dept. of Marine and Aviation, New Chambers, president, Wings Club; Col. Albin M. Pope, president, Commerce and Industry Association, Inc.; Leroy A. Lincoln, president, Metropolitan Life Insurance Co. and president of the Chamber of Commerce of the State of New York.

Brazil, Peru Schedule Air Talks With Burden

William A. M. Burden, Assistant Secretary of Commerce, has gone to Brazil and Peru to discuss civil aviation topics with officials of those republics.

On Burden's agenda are post-war development of civil aviation, integration of the airways system in the western hemisphere, aviation training and education, and air safety.

Hemisphere Hope—Representatives of all South American nations, with the exception of Argentina, expressed the hope of last year's Intercontinental Civil Aviation Conference at Chicago, that a single airways system might be adopted for the western hemisphere. Argentina was not represented at the meeting. Canada and the Republic of Mexico already use airway facilities and methods of the Civil Aeronautics Administration.

One of the high points of Burden's trip may be a visit with Adolph Berle, Jr., U. S. ambassador to Brazil, who, while in Brazil, will be a guest of the Brazilian government during the Chicago conference.

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Where Is Everybody?

A CAB members' secret making recommendations to the Board of vital importance to all present and proposed operators of non-scheduled air services was issued Aug. 20, and appeared in AVIATION NEWS Aug. 22. Comments on the report, suggesting registration and certification of all operators, were requested by CAB within 20 days from issuance. The Board made the declaration that, depending upon the nature of such comments, it may assign the subject for oral argument. Believe it or not, despite the long-range significance of the proposals made by the examinee, which may be adopted unchanged by the Board, there had been only one comment filed with the Board up to last Thursday.

It has been the habit of some fluid-bed operators to sit back with an air of hopelessness and label the membership of the Civil Aeronautics Board as a group prejudiced against them. The Board, however, is compelled to base its decisions in large part from the best evidence which it is able to gather. If the non-accertained operators now mull their opportunity to win an oral argument on this report and present their case to the Board, in a show of strength of unity, let there be no words of anguish, and no cries of persecution or accusations of sinister influences from the bog, bad airlines.

Response from the operators has also been meager, if there has been any at all, on the proposed safety regulations suggested by CALF's Safety Bureau several weeks ago. These appeared in the News, Aug. 29. If adopted, these recommendations would make it impossible for far more than half of today's operators to engage in any transport business.

Apparently the only group which has shown an awareness of the problem is the Aeronautical Training Society, whose newsletter last week told the operators bluntly.

"What will eliminate objectionable features from proposed regulation is a strong response from the grass roots. Representatives of one or two trade associations in Washington can't do the job alone. What the Board will respect, will listen to, what it may even hope for is hundreds of responses, both personal and by mail, from those . . . with a stake in the business. And that means every fixed base and every distributor and manufacturer of airplanes. If we let the game go by default, we deserve to lose it. And we will."

lose it if we keep silent, and give consent to putting the infant in leg irons and handcuffs¹⁰

Who is filing official comments with the Board on the examiners' recommendations by the Sept. 11 deadline? Who is requesting an oral argument? Who will present the non-scheduled industry's arguments at that proceeding if it is held? Who is leading any opposition to the proposed safety regulations, comments for which must reach the Board by Oct. 1?

Where is everybody?

Why Aircraft Memorials?

PUBLIC DEMAND has induced Surplus Property Board to extend distribution of war-weary combat planes under its educational program to states, counties and cities who wish to display aircraft as war memorials.

The terms are the same as those under which schools may make purchases: \$350 plus handling and shipping charges for a *Flying Fortress*; \$100 plus charges for a fighter plane.

At first glance, wide use of World War II bombers or fighters may appeal to the public! It gives the government a few dollars in revenue. It would make unnecessary the scrapping of a few planes, a practice which still seems so repugnant to many citizens who do not understand that an obsolete combat plane has already performed its job, that it is worthless and should not be permitted to figure in any current estimates of our air power. The idea of having an perpetual exhibit in the public square a *Pentecost* or *Thunderbolt* from a squadron which was manned by several local boys has its sentimental aspect.

But the other side of the picture is this: the revenue derived is inconsequential. Handling and shipping charges will be costly. The aircraft will serve no useful purpose for the living. Local townsmen could do more for aviation, their community, and these country to construct a local memorial airport to further flying training for young men who would be called on in a future war. Since there is no provision under the SPII arrangement that either displaying the aircraft must keep them in good condition, these symbols of our air might well look seedy and outmoded after sitting in the weather and become unsightly objects. Yet who will be bold enough to order a war memorial removed?

We hope SPB will have few customers from local governments for aircraft memorials.

Eugene H. Wern



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